(Photo: Pegasus International)

THIS MONTH'S COVER

One of the most talked-about pharmaceutical products outside the U.S. is "Polybactrin" antibiotic powder spray, manufactured by Calmic Ltd., Crewe and London, England. The container is equipped with a "Vapsol" valve and is reported to be the first such pharmaceutical product spraying a dry Neomycin powder, which is in liquid suspension in the bottle. The product, which attracted considerable attention at the London Medical Exhibition late last year, may be used for a number of applications where the skin or tissue is broken. Its chief active ingredients are Zinc Bacitracin, Neomycin Sulphate, and Polymixin "B" Sulphate.

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The magazine of pressure packaging

AEROSOL AGE

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BRICKBATS and BOUQUETS from the MAILBAG

I was very much interested in the January issue of your magazine, which was very informative on a number of different phases of the aerosol industry. I was particularly interested in the article on the shipment of aerosols summarizing the existing ICC regulations. As far as I can see, it is a complete, concise outline of the regulations, and I am sure that it is a great deal more convenient for the shipper than the regulations themselves.

If you have two additional copies of the magazine, or reprints of this particular article, we should like to use them as a reference in our shipping department.

Many thanks for the efforts of your magazine, in behalf of all of the participants in the aerosol industry.

L. L. Brennesholtz
YARDLEY OF LONDON, INC.
Union City, N. J.

We read with great interest your article in the January issue of your magazine entitled "Shipment of Aerosols."

If it is possible we should very much appreciate receiving a reprint of the article, as we feel it will help us in the movement of two items which are aerosol-packed.

John D. Juzaitis
RENUZIT HOME PRODUCTS CO.
Philadelphia, Pa.

We thank you for your note on our "Box" aerosol products in your December *Aerosol Age*. In the text we have noticed a slight error in the sizes you specify for the products. Our moth and fly aerosol is manufactured in 6, 12, and 18-ounce cans, and not in 6, 8, and 12-ounce cans as you say in your article. Incidentally, as far as we know, we are the only manufacturer of a moth and fly aerosol in the 18-ounce size.

Hans Von Bergen
KLARRE & CO. A.B.
Stockholm 9, Sweden

Recently, I had the pleasure of reviewing the December 1956 issue of your publication. This excellent journal contains much information of interest to those of us in the Containers and Packaging Division, Business and Defense Services Administration, U. S. Dept. of Commerce. We would, therefore, appreciate having the opportunity of reading future copies of your packaging publication.

Robert J. Small
CHIEF, RIGID CONTAINER BRANCH
CONTAINERS AND PACKAGING DIVISION
DEPT. OF COMMERCE
Washington, D. C.

In the Spotlight this month

- **The Jet Bon Ami Story** . . . Dr. D. H. Terry, developer of the product that has turned out to be probably the "hottest" in the industry, discusses, on page 10, some of the considerations that went into the original planning of the product, both from packaging and merchandising standpoints.

- **Machinery for Packaging Food Aerosols** . . . A typical production line for the packaging of food aerosols is demonstrated by a representative of a major aerosol filling equipment manufacturer. Economy, performance, and other factors are discussed, beginning on page 14.

- **University of California Institutes Aerosol Course** . . . Pressurized Packaging goes to college! The College of Pharmacy of a major college, in recognition of the upsurge in aerosols, has instituted an aerosol seminar as part of a graduate course. Story on page 15.

- **Erik Rotheim, Pioneer Extraordinary** . . . The career of the "unsung hero" of early aerosol development is outlined in an article on page 18.

- **Methylene Chloride in Aerosol Production, II Bulk Storage** . . . Dr. W. H. Reed and T. M. Swain discuss some of the economic and physical problems involved in the bulk storage of methylene chloride, beginning on page 20. They present statistical data showing some of the possible savings involved through use of methylene chloride.

- **Aerosols in Review** . . . Brief outlines of some recent articles on aerosol subjects appearing in foreign and domestic periodicals appear on page 25.

- **Chicago Packaging Show** . . . A complete aerosol filling line, reportedly the first at any industrial show, will highlight the National Packaging Exposition in Chicago. Story on page 28.

EDITORIALS

New Legislation . . .

The large number of "Proposed Legislation" texts recently released by the CSMA to its members—most of which govern the labeling and sale of pesticides in various states—includes one bill that should make the aerosol industry stop and ponder. Assembly Bill 976, introduced in the New York State Legislature by Rep. LaFauci and since referred to the Codes Committee for consideration, has all the earmarks of a first class (though unintentional) "curve ball" for at least one segment of the industry.

It will require complete ingredient statements on all packages of paints or enamels, and provide that after Jan. 1 of this year (1957) "no person shall sell, offer, or expose for sale within this state any paint or enamel, and no person, firm, association, or corporation shall send into this state for purposes of resale within this state any paint or enamel in any can, pail, or other container which does not bear a label containing a true and complete statement of the ingredients and components of such paint or enamel and the percentages of each."

Whereas the other bills proposed in the various legislatures aim at governing the labeling of pesticidal preparations (which are already governed by existing Federal laws anyway), and most cosmetic, pharmaceutical, and food products must (under the FDA and existing state laws) also contain detailed ingredient labels, this law is the first in a good while to propose regulation of a new aerosol product type. Even though the bill makes no specific mention of "aerosol" or "pressurized" paints, should it become law a great many aerosol paint and enamel sprays (some of them specialty products that just barely fall into the general paint category) will be affected automatically.

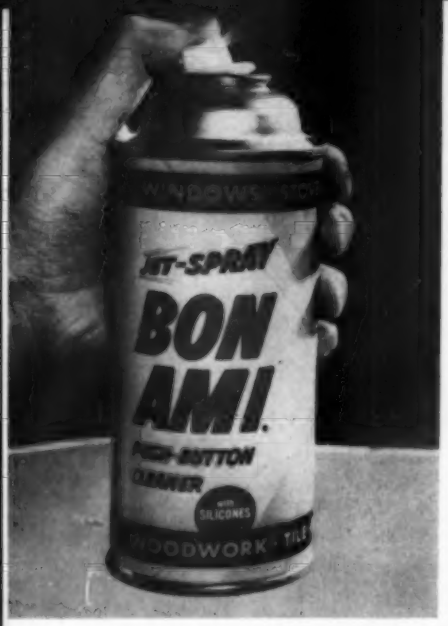
Should the new bill become law, aerosol paint products on the shelves of hardware stores, automotive and paint supply stores, etc., will have to be re-labeled or returned outright to the manufacturer. Inventories and stock rotation might be upset, and the blossoming aerosol paint industry will possibly suffer a temporary setback—at least in New York State.

Whether or not the bill is passed (and we hope it won't be—at least not at this stage of the game) the aerosol industry should be aware of this new "legislative" danger to at least the merchandising phase of selling the pressurized container.

Another bill has come in for extensive publicity within the last month. Connecticut House Bill No. 162, introduced by Rep. Prokop on Jan. 11, came under considerable fire from the Chemical Specialties Manufacturers Association and from various aerosol manufacturers both inside and outside the state. An act "concerning the Labeling of Hazardous Substances", it would specify various flame and other type tests for "hazardous substances", rather than allowing the commissioner of food and drugs to utilize his own discretion in selecting the tests most appropriate to the particular product.

A more acceptable alternate bill has since been proposed, and an important public hearing was held Feb. 21 in Hartford to determine acceptability of the new bill. The CSMA is to be highly commended for its alertness in bringing the bill so promptly to the attention of the industry, and even more so for initiating action to have the

(Continued on Page 57)



the JET BON

AN important, direct way to expand sales volume and to increase profits today is through the development of new products and their successful introduction to the consumer trade. Profits mean growth and financial success, our main yardsticks for ultimate evaluation in the industrial world.

It is well known that it is in the laboratory that existing products are improved and new ones developed. Here is uncovered new knowledge that can improve the performance, quality, and packaging of these products: We realize the value of rational techniques in guiding research policy, and we also know of cases where "hunch" played an important role.

But in today's complex consumer market, every laboratory undertaking must be weighed against market conditions, potential markets, competitive products and an intricate program of other factors. While we readily accept the importance of laboratory research, too little credit is given to the vital relationship and teamwork between research and development, market research, sales analysis and management. The development of any new product from the time the need for it is recognized to the time the finished product is successfully established in the market, is a cooperative and organized effort involving research and product development, market research, product planning, product testing, management, sales strategy, selection of distribution channels, advertising, public relations, sales promotion, pricing, and selling.

The story of "Jet Bon Ami" could be the story of almost any newly developed or successfully established consumer product. It could be a new and more effective insecticide, a new soap product, or a new and better detergent.

The story began, not in the laboratory, but with a market study of a number of consumer products. Marketing needs and opportunities were then examined. Such questions were considered as: What products does the consumer want? What products does he need? What does the product have to do for the customer? How much can be afford to pay? Also, the present market volume of such products was determined.

No. 1. The Bon Ami package as it was first introduced in the test markets.

As a result of this analysis, one group of consumer products—specifically, liquid window cleaners—was considered worthwhile examining in more detail.

It was found that over the past few years, many types of products had been introduced to clean and polish glass, such as mirrors and windows, as well as tile and porcelain, painted and unpainted woodwork, enamel surfaces and the like. These products varied from clear liquids, liquids containing abrasives, to pastes and powders.

With the introduction of the clear liquid, or non-abrasive types, it was found that mirrors, windows and the like, could be cleaned quickly, simply and without the messy fine dust that settles on furniture and window sills when abrasive types are used. The clear liquids may not do as good a cleaning job as the abrasive ones, but they are easy to use and the job can be done quickly and in one operation.

As a result, the popularity of liquid window cleaners has grown at a continuous rate. Other products, such as abrasive emulsion cleaners, have at-

*Paper presented at the annual convention of the Association of American Soap and Glycerine Producers, Inc., on January 25, 1957, at the Waldorf-Astoria Hotel, New York City.

AMI STORY

By Dr. D. H. Terry*
Vice President
Director of Research and Development
The Bon Ami Company

tracted equal attention, and acquired sizeable sales volume due to promotion and merchandising. But after a time, their sales decreased to a much lower level.

However, the liquid window cleaners have continued to hold their position and, according to a recent *Food Topics* report, their sales were approximately $12 million.

ABOUT four years ago, we felt that there was a definite place in the market for a liquid window cleaner that would not only be competitive with, but also superior to, other liquid window cleaners in cleaning ability.

We began our investigation with the idea of compounding a liquid window cleaner for household use, one that would have superior cleaning properties. Although this product was definitely superior in cleaning properties to the other cleaners, we felt that the housewife might find it difficult to notice this improvement, since it was a matter of degree and not of kind. In view of this, we felt that the product must have some property that would be immediately noticeable to the housewife, in addition to being superior in cleaning performance.

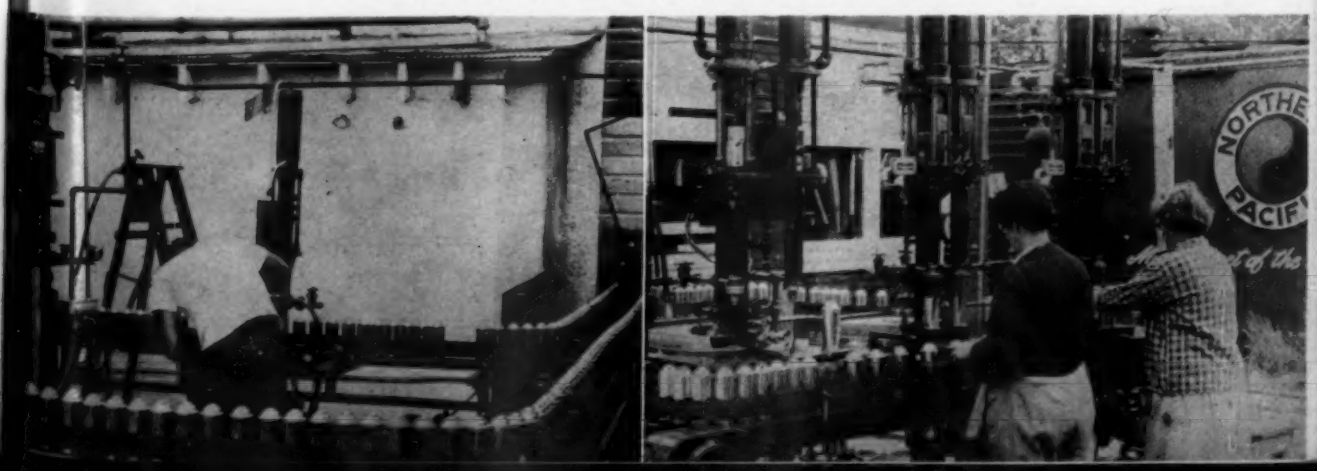
With this in mind, we developed additional formulations which demonstrated not only the improvement in cleaning properties, but also imparted a high polish and slickness to surfaces cleaned. This was accomplished with the incorporation of silicones. Silicones gave not only improved wipe off, soil removal and ease of cleaning, but also gave a definite improvement in cleaning, polishing and overall efficiency to these liquid window cleaner formulations.

As laboratory work progressed, various difficulties were eliminated one by one, until finally a window cleaning formulation was developed that, in laboratory tests and under practical conditions, cleaned better and imparted a high polish and improved wipe-off, eliminated smearing, gave excellent re-wetting and did not show any separation on standing. Of the many formulations examined, "Experiment #107" was finally found to meet all the requirements that were thought to be desirable in a window cleaner formulation.

Although we aimed at the development of a superior liquid window cleaner, once the formulation had been determined, many applications, in addition to windows, windshields, mirrors, television screens, etc., were uncovered. Through additional laboratory and practical tests, we found that formulation "107" was excellent for removing finger prints and greasy film from painted surfaces, such as painted woodwork, refrigerators, cabinets, stoves, etc. Furthermore, we found the formulation to be useful for cleaning and removing water spots from tile, chromium, nickel, and brass surfaces.

With the formulation firmly established, and applications and uses for

No. 2-3. During the peak of the first buying rush for the product, Continental Filling had to maintain filling lines outdoors, while housing for the units was constructed around them.



it well defined, the next step was packaging.

In 1936, a liquid window cleaner was introduced to the household trade in a glass bottle with a separate plunger type sprayer. In the fifteen years that followed, practically all of the liquid window cleaners were packaged in glass bottles.

The glass bottles were favored because these liquid window cleaner formulations tended to cause corrosion in metal cans, the only other type of container available at that time.

Within the past four to five years, other types of containers had been developed, such as the polyethylene squeeze bottle, specially lined metal cans, and specially-lined pressurized containers. Because of these developments a new trend in the packaging of water base liquids has gradually taken place.

One might call it coincidence, or fortuitiveness, but at the same time as the product development work and packaging study was being carried out on formulation "#107," the aerosol industry was growing amazingly fast. In fact, the new products in aerosols were like new freckles on a six year old red-head's face. Everytime you looked there appeared to be a hundred more.

The aerosol type packages appeared to have a number of distinct advantages over other methods of packaging formulation #107. We were looking for a package that would be unusual, but still be convenient and economical. The aerosol package appeared to have these prerequisites because it is always ready for use, it requires only the push of a button, most products can be dispensed in a matter of seconds, and it is also effective and clean.

In fact, in 1953 there was a back-to-liquid trend in window cleaners as aerosol-dispensed products. The new aerosol products had a number of advantages over products in other packages, in that they were dust free, did not require hard rubbing, no pumping, no pouring, no dripping, no breakage or leakage of cans.

Some of the earlier products introduced in pressurized containers fell by the wayside because of the problem of corrosion.

Since we were aware of the corrosion problem in connection with liquid window cleaners, formulation #107 had been designed in such a way that it was thought that corrosion could be controlled or eliminated.

THE first step in our investigation of the pressurized package for formulation #107 was an arrangement with General Chemical Co.'s Technical Service Laboratory to package a number of samples of #107 in pressurized containers. In this work, a variety of propellants, different concentrations of propellants, different types of valves, and also a number of actuators were used. Many showed considerable promise, not only in lack of corrosion, but also in dispensing and cleaning. In accelerated storage tests and prolonged storage tests at room temperature, our product, packaged in a lined 12-ounce spray-tainer, showed no corrosion. At the same time, in a cooperative program with several aerosol contract fillers, a thorough study of our product in different types of cans with a variety of liners, mixtures of propellants, and elaborate storage tests were carried out.

As a result of our cooperative program with the Continental Filling Corp., an aerosol contract filler, formulation #107 was successfuly packaged in a pressurized container from which it could be dispensed in a desired form. Elaborate storage tests and further evaluations showed that formulation #107 packaged in pressurized containers would function properly, present no problems on corrosion, and remain stable over long periods of time.

Once physiological data, flammability, patent considerations and labeling were determined, the product was ready for consumer panel testing. A sizeable panel of housewives was set up. Samples were given to each, along with questionnaires. At monthly intervals, there were call-backs by regular interviewers with additional questions. This consumer test was undertaken to find out where the market

No. 4-5. Before the cold weather was able to set in, the outdoor filling line was safely housed in a small addition to Continental Filling's main plant.

for this new product would be, what the consumer would expect of it, what would be the most likely retail price, and to gather other information that would be invaluable in determining its potential.

The results of the test showed that eight out of ten women who regularly cleaned with delayed-action watery type cleaners preferred formula #107 in an aerosol container. Also, eight out of ten women who formerly used powdery type liquid cleaners preferred the aerosol product. Specific reasons for preferring the aerosol formulation were tabulated as follows:

63% said the aerosol product gets the job over in a jiffy.

82% said the aerosol needs so little polishing.

84% said the aerosol gets windows and mirrors completely clean without streaking.

The test results were most favorable. In fact, the housewives' preference for #107 was far more than we had dared hope for or expected.

It was then decided to introduce our aerosol window cleaner in three test markets, namely, Richmond, Virginia; Syracuse, New York; and Harrisburg, Pennsylvana, in early April, 1956, as "Instant Bon Ami Window Cleaner," in a 12-ounce Crown spray-tainer. In photograph number one, is shown the package as it was introduced in the test markets.

To introduce the product in the three test markets, radio, television, and newspaper advertising, and other merchandising methods were all employed. "Instant Bon Ami Window Cleaner" was readily accepted. In fact, acceptance followed closely the pattern indicated by our consumer panel test. The movement of the cleaner in these three markets was checked by store audits and also by consumer's reaction to the product as shown in house-to-house surveys.

About one month after "Instant Bon Ami Window Cleaner" had been introduced, The Bon Ami Co. came under new management. Around the first of May, 1956, United Dye & Chemical Corp purchased control of

No. 6. The stacking feature of the container.

Bon Ami, and under the new management there was a rapid succession of new developments.

In view of the spectacular early sales of the cleaner in the three markets, a decision was made to go national as soon as possible. It was decided to change the container from the 12-ounce Crown spray-tainer to the taller 14-ounce Continental three-piece can, with the stacking feature built in. Elaborate storage tests had been completed and it was found that our cleaner showed no corrosion in a ½ pound electrolytic unlined three-piece can, at accelerated temperatures, and also, after one year's storage at room temperature.

A DECISION was made to change the name to "Jet Spray Bon Ami Push-Button Cleaner." The change was made to take advantage of the fact that formula #107 is suited for a variety of light duty cleaning jobs such as sprucing up refrigerators, venetian blinds, counter tops, chromium appliances, bathroom tile, washable wall paper, painted woodwork, etc., in addition to window and mirror cleaning.

We also decided to back up the introduction of "Jet Bon Ami" on a national basis with a million dollar advertising and promotion budget. To handle the advertising, we selected Ruthrauff & Ryan, Inc.

By the end of May, a schedule for introducing "Jet Spray Bon Ami" on a national basis was drawn up, so that it would be in as many markets as possible in time for the big fall season. The new label design was approved and sales meetings were being arranged. Advertising copy, etc., were all in the progress of being written. The schedule called for introducing "Jet Spray Bon Ami" to the New York consumer market in early August, the rest of the East by early September, and complete national distribution by the end of September.

This schedule put tremendous pressure not only on the pressure packager of Jet Bon Ami, Continental Fil-

(*Continued on Page* 47)

No. 7. Bon Ami will shortly bring out a new label for its aerosol product. The new label (at left) will be slightly different in design and will feature the traditional "chicken" trade mark of the Bon Ami Co.

Equipment For Packaging Aerosol Food Products

Edward H. Zellar*
Mojonnier Associates, Inc.

THE equipment for packaging food aerosols is neither particularly complicated nor very expensive.

In the photograph is shown a representative aerosol food packaging line which may be used to package either pressurized whipping cream or hydrogenated vegetable oil. The latter, as you may know, is a lower priced "topping" than butter fat whipping cream.

This particular filling line is designed to handle one-inch top opening cans. Other lines, which will be discussed later in the article, can be laid out to handle open top cans, onto which the can lid (with valve already staked in) can be seamed. As needs dictate, either type of line can be augmented with can unscramblers, can coders, special conveyors, conveyorized packing tables, and special labor saving equipment.

The food aerosol packaging line in the photograph operates in the following manner:

Cans are either placed manually on the intermittent movement conveyor line or are fed to it by a can unscrambler. The product is filled automatically in two stages by the "Electromatic" two spout filler—each spout filling 50% of the total amount of product. "No can-no fill" controls are provided.

Next, valves fed from the hopper are automatically sorted into proper position and travel down a feed track. At the end of this track they are automatically picked up by each passing can preparatory to valve crimping.

The air-operated crimper automatically crimps each valve into the one-inch top opening of the can, thereby completing gas-tight packaging of the product proper.

The cans are then ready for gassing-shaking and automatically transfer from the intermittent movement filler conveyor to the continuously moving conveyor of the gassing-shaking unit in the photograph.

Up to ten cans accumulate automatically beneath the multi-head manifold of the gasser-shaker unit. The manifold automatically engages all can valves simultaneously and as the propellant gas (nitrous oxide-carbon dioxide) is charged in through the container valves the cans are vigorously agitated.

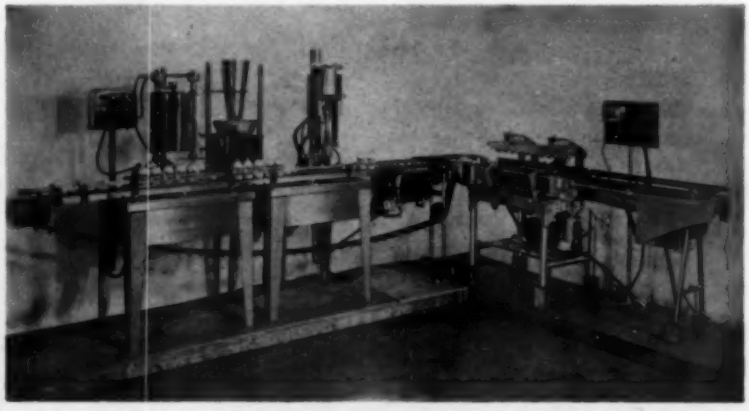
At the end of the gassing cycle — usually about twelve seconds — the manifold disengages and the cans are automatically carried away by the conveyor for attaching of the overcaps and the packing off.

The labor requirement is relatively small. One person is needed to either feed cans manually or to supply the unscrambler. A line supervisor is utilized usually to also supply valves to the valve feed hopper and sometimes to bring up packages of empty cans to the infeed into the line. And finally packing table help, who can also be used to attach the valve protective over caps, complete the operation.

The rated capacity of this line is approximately thirty 12-ounce cans per minute, and at relatively small additional investment its speed can be increased to approximately 45 to 50 cans per minute.

The operation of an open can type line is substantially the same, except that an automatic lid feeder — which feeds lids with the valves already staked in — supplants the hopper type valve feeder and a can seamer supplants the one-inch valve mounting cup crimper.

From left to right, the aerosol food equipment components are the "Electromatic" filler for whipping cream or vegetable oil product, automatic valve sorter and feeder, valve crimper, filling line drive unit, and, around the corner on the line,—a gasser-shaker.



* Address given at the Illinois Institute of Technology, Department of Food Engineering, on Jan. 10.

It is evident that equipment for the filling and packaging of pressurized whipping cream and light types of product must be designed and manufactured to dairy sanitary standards. These standards are perhaps the most exacting in the entire food processing industry due to the fact that bacterial growth takes place at a highly accelerated rate in milk in contrast to most other food products.

It is appropriate at this point to specify that as yet the fluorinated hydrocarbon compressed liquefied propellants are not being used in foods pending the completion of exhaustive toxicity studies. The toxicity of these propellants is considered to be of a relatively low order in the amounts which might be ingested from foods in which they were in contact. While research on this point is going forward, nitrous oxide-carbon dioxide is the propellant gas customarily employed for food products.

These gasses are filled in food aerosols as compressed unliquefied gasses not as liquids as is the case in other non-food products. Consequently the pressure in a food aerosol is not constant from start to finish — as is true with aerosols employing liquefied fluorinated hydrocarbon propellants. Food aerosol containers are, in a true sense, over-pressured at the start in order to have enough reserve pressure left to dispel the last of the product as the can becomes emptied.

To be more specific, most fluorinated hydrocarbon propellant aerosols in metal containers maintain a substantially uniform pressure of about 40 pounds per square inch from start to finish. A typical aerosol packaged whipping cream, on the other hand, will be under a pressure of approximately 90 pounds per square inch at the start and this pressure will continually drop as the product is used. Food aerosol cans therefore usually embody heavier construction than would be true of, for instance, an aerosol shave cream container.

The first application of the "Electromatic" filler was in filling pressurized whipping cream, while later it was used for the filling of liquefied

(*Continued on Page* 55)

University of California Begins Aerosol Courses

A COMPLETE course in aerosol packaging, believed to be the first in the entire country, has been established at the School of Pharmacy of the University of California Medical School, San Francisco.

The three-week course is part of the School of Pharmacy's program leading to a professional doctorate, a six-year training program that includes intensive studies in chemistry and physical, biological, and professional pharmacy. In the sixth year of the program the student takes a unique course in drug product development, administered by Assistant Professor Sidney Riegelman.

The catalogue description of drug product development reads: "A study of the principles involved in the development of medicinal products in suitable dosage forms. Special consideration is given to solubilization, dispersion, stabilization, and the role of vehicles in controlling the availability of drugs for absorption." Three important weeks of the drug product development are devoted to lectures on the fundamentals and development of aerosol packaging and equipment.

The student's background is prepared by the instruction he has received in an earlier lecture part of his course covering such subjects as stability studies, solubility, corrosion analysis, emulsion stabilization, etc. — and his five previous years of chemistry, biology, physics, and related courses leading to the degree in pharmacy. The lecture course, which takes into account the mechanics of the aerosol package, valves, etc., as well as present and possible future uses for aerosols, is accompanied by practical laboratory experiments. These include phase problems, solubility of ingredients, stability testing, and formula development. The laboratory equipment includes laboratory-scale cold and pressure filling assemblies, crimping and pressure testing equipment, which combined with the general laboratory's constant temperature baths, u.v. spectrophotometer, rotational viscometers and polarographic analysis equipment, make the University of California set-up easily the best equipped college laboratory for aerosols in the United States. In the laboratory a display is maintained of the various container and valve types, kept up to date by contacting the various producers of these components.

The University of California is making a real attempt to keep its information and technical data current. Professor Riegelman says: "In all cases, the experiments are designed so that they are not merely repeated by each student each year, but rather a file of information is gathered and additional facets of particular problems are investigated."

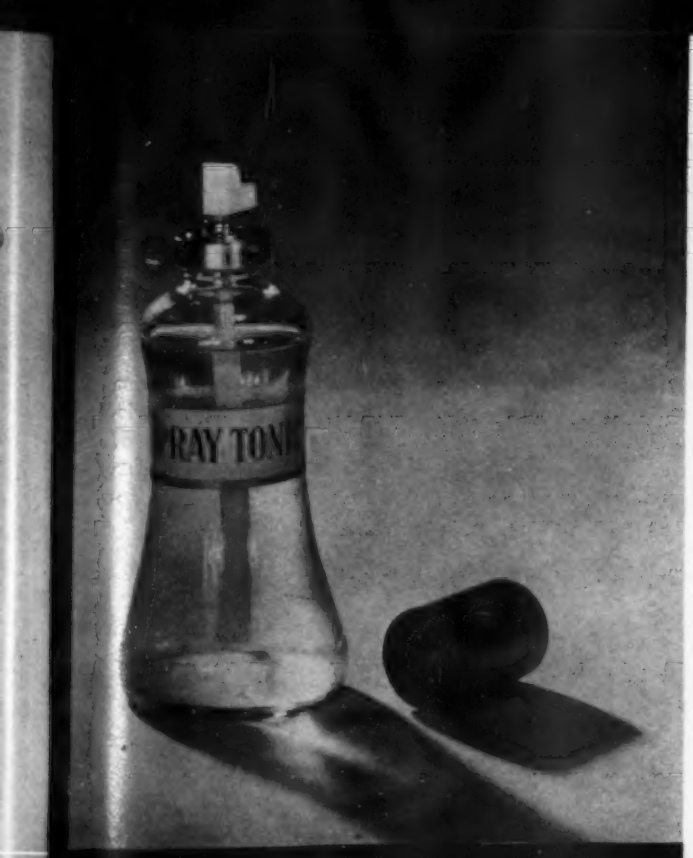
Professor Riegelman sees the possibility that in the future students will be interested in specializing in this aerosol area alone. At that time he anticipates considerably increased laboratory studies.

The University of California program is currently open to men and women who, holding the degree of B.S. in pharmacy, wish to do graduate work leading to M.S. and academic Ph.D. degrees in pharmaceutical chemistry. The student is permitted to do research in his particular area of specialization, and though the academic graduate training program differs from the professional program in some of the major courses, drug product development (and, therefore, the aerosol lectures and lab work) is included in both programs.★★

SHAKE WELL
Lederle
No. 4848-27
ACHROMYCIN
Hydrochloride
Suspension
TOPICAL
SPRAY
FOR PREVENTION OF INFECTION IN
MINOR SKIN CUTS AND ABRASIONS

Lifetime Dri-Film
LUBRICANT
Spray it on!
PERMA-
GLIDE

Plasti-Kote
AEROSOL
SPRAY
PAINT



New Products and Packages

• **Achromycin Topical Spray,** an aerosol form of the broad spectrum antibiotic, Achromycin tetracycline, for the prevention of infection in minor skin cuts and abrasions, has been introduced by Lederle Laboratories Division of American Cyanamid Co., New York. Packaged in ConCan and CanCo containers with Precision valve and Freon propellant, the filling is being done by Stalfort Pressure-Pak Corp., Baltimore. Each three ounce container will retail at $2.50.

• **Perma-Glide,** a dri-film lubricant, was introduced last month by Flamemaster Chemicals, Inc., Culver City, Calif. Though used for eight years for lubrication of moving parts in industry, the six and 16-ounce containers are the first aerosol applications of the product, which will not pick up dirt, dust, or lint. It will retail at 98c for the smaller and $1.98 for the larger container.

• **Montjardin Spray Tonic,** is a new product of Au Bon Marche, largest department store in Brussels, Belgium. Packaged in an uncoated two-ounce bottle by Desjonqueres S. A. of Paris and using a Risdon valve, the product sells for the equivalent of 50c. Au Bon Marche also is packaging brilliantine and eau de cologne in similar packages at the equivalent of 70c and 60c respectively. The company attributes part of the saving in cost to the paper labels and locally-made aluminum caps.

(Photo: Pegasus International)

Nanuet Valve Co., Nanuet, N. Y., recently unveiled its new plastic perfume and cosmetic specialty package equipped with a metered spray valve. The cap is part of the valve assembly, the spray being delivered from a port in the side of the cap. The package is leak proof and carries a two-year shelf life guarantee.

• **Plasti-Kote Aerosol Paint Spray** was recently brought out in "unprecedented" can sizes of 16.4 ounces. The complete new line of spray enamels, manufactured by Plasti-Kote, Inc., Cleveland, features a detachable spray head and protective can cap to match the color of the contents. The new paint line will retail at $1.89 and come in chevron blue, swift red, rose pink, chartreuse, and a number of other colors.

• **Gold Hand** (De Vergulde Hand) featuring a unique package design, is being introduced in the Netherlands by Messrs. Woltman Elpers, an Amsterdam soap manufacturer established in 1554. The product is being manufactured and filled by The Aerosol Co. Holland N. V., Hilversum.

Erik Rotheim

Aerosol Pioneer Extraordinary

by Albert Edelstein
President, Syncro-Mist Controls, Inc.

OUTSTANDING personal success and universal acclaim achieved by many of our pioneers or inventors sometimes tends to conceal the fate of the unnoticed pathfinders in history. Such a thing has happened in the aerosol industry, where Erik Rotheim made some of the basic pioneering contributions to the industry at a time when the word "aerosol" had no meaning in the packaging field.

As early as 1927, the year Lindbergh crossed the Atlantic and Babe Ruth hit 60 home runs, Mr. Rotheim took out his first patent on what today would be classified as an aerosol. Throughout the Thirties and early Forties, he continued to patent various inventions and developments in pressurized packaging, long before the work of Lyle Goodhue and William N. Sullivan in 1942 and 1943. Yet for all his genius (and the debt owed him by the thousands of people who derive their present livelihood from aerosols, and by the millions who have come to enjoy the pleasures of "push-button" packages) Erik Rotheim remains the unknown man — an individual whose accomplishments and name are known to but a few in the industry.

The story of Erik Rotheim begins in Norway, where he was the son of Mrs. Erica Rotheim, a former opera star of that country. He was an enthusiastic follower of the sport of skiing (as are most young Norwegians), but his interest extended even to the mechanics of some of the equipment for the sport. Since one of the most tedious chores in skiing has always been the application of wax coating to the skis and other equipment, he employed his chemical and mechanical genius to devise a method of spraying the material — succeeding in producing both the device and product for the purpose.

This first invention led to his filing of a patent application with the U.S. Patent Office (on Sept. 30, 1927). This early patent (#1,800,156), labeled a "Method and Means for the Atomizing or Distribution of Liquid or Semi-Liquid Materials," was issued April 7, 1931. In it mention is made of many aerosol products which didn't appear on the shelves of American stores until the 1950's!

Another, perhaps more important patent was filed Nov. 12, 1928, this one describing a method and an apparatus for atomizing materials. This was later issued as U.S. Patent #1,892,750.

In succession, Mr. Rotheim was granted a patent (#2,128,433 on Aug. 30, 1938) for an insecticide composition for aerosols; and another (#2,335,312) for a valve for liquids under gas pressure.

At the height of his inventive period, he died following an appendectomy in 1940.

Even after his death, however, his patents continued to be granted. His last important patent was issued May 16, 1944 (#2,348,851) covering a liquid spraying apparatus intended for spray coatings. This patent has still not expired.

Soon after Mr. Rotheim's death in 1940, the Germans occupied Norway; and when the United States entered the war the next year, all U.S. Patents were seized by the Alien Property Custodian, along with properties of all aliens whose countries were occupied by the enemy.

At the end of the war, Mrs. Erica Rotheim, mother of the inventor, visited the U.S. for the purpose of negotiating licenses under the rights of her son's patents. She made application and was granted return of the patents from the Alien Property Custodian, proving that the Germans did not gainfully participate in her son's patents, and that she herself had maintained a record of non-cooperation with the Germans. During her visit she concluded an agreement with the Bridgeport Brass Co., Bridgeport, Conn., and then returned to Norway. Except for this, the Rotheim family received meager financial returns from these contributions to the birth of the new industry.

I would urge the aerosol industry to acknowledge in some way its great debt to Erik Rotheim. Possibly the CSMA could create a special award to Mr. Rotheim as the individual who made the most notable early contribution to the development of the aerosol industry. Such an award would serve to advance the industry itself by giving recognition to those who serve it best. It would also serve to atone for the unwitting injustice which fate has imposed upon Erik Rotheim, truly the first pioneer of the industry!★

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Methylene Chloride in Aerosol Products... II Bulk Storage

METHYLENE chloride is finding increasing use as a propellant and formulation component in aerosol production. Interest in methylene chloride is not surprising, since it is non-flammable, essentially non-toxic, has excellent solvent properties, and has a cost per gallon which is less than one-half that of trichloromonofluoromethane (Propellant 11).

It is of interest in this paper to discuss some of the advantages to an aerosol filler, of even moderate production capacity, of buying and storing methylene chloride in bulk quantities. A previous paper(1) reviewed some of the applications of methylene chloride in aerosol production and has covered various items on plant handling techniques.

In addition to the cost savings, which are discussed later, bulk handling gives a considerable saving in space requirements, in handling, labor, and time. Evaporation losses and spillage are reduced. It is also easier and cheaper from a quality control standpoint to run a few careful tests on a large bulk sample than it is to check quality on a great number of drums.

Production Requirements

Typical aerosol loading installations for the smaller volume producers have capacities of 10,000, 15,000, 20,000 and 30,000 units per day. Producers of non-aqueous products, whose capacities exceed this, are usu-

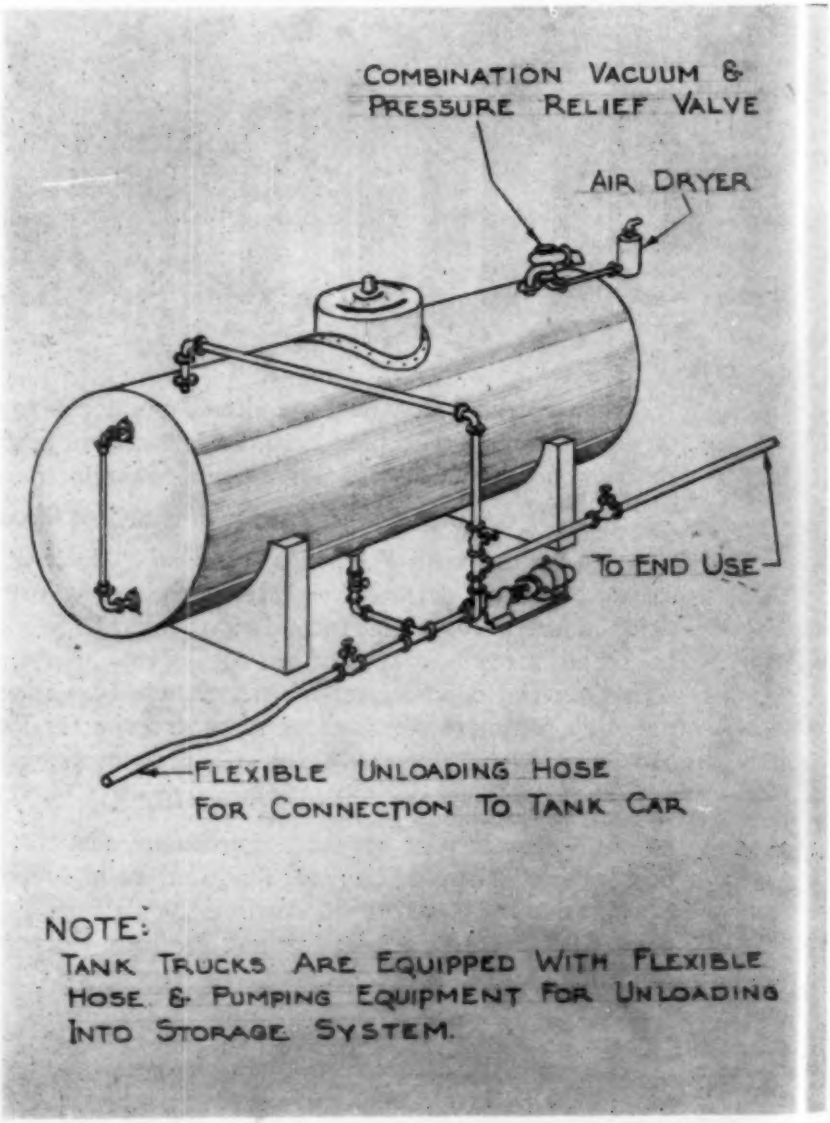
COMBINATION VACUUM & PRESSURE RELIEF VALVE
AIR DRYER
TO END USE
FLEXIBLE UNLOADING HOSE FOR CONNECTION TO TANK CAR
NOTE:
TANK TRUCKS ARE EQUIPPED WITH FLEXIBLE HOSE & PUMPING EQUIPMENT FOR UNLOADING INTO STORAGE SYSTEM.

Figure 1 Typical Tank Storage Installation

1. Reed, W. H., "Methylene Chloride in Aerosol Production," *Aerosol Age* 27 *1*, June (1956)

By
Winston H. Reed
Aerosol Consultant
and
T. M. Swain
Solvay Process Division
Allied Chemical & Dye Corp.

The authors discuss practical methods of handling the bulk storage problem with methylene chloride; and include a general argument for the savings in cost involved.

ally familiar with the advantages of both methylene chloride and of bulk storage, and are already equipped with well engineered storage and handling facilities. However, there are many new loaders in this business, now using methylene chloride in drum quantities, who may find this discussion on bulk storage of value.

Methylene chloride has been used in a variety of aerosol products. One trade booklet(2) lists 23 typical aerosol formulations containing this material. Included in this list are such products as insecticides, room deodorants, snows, paints, moth proofers, oven cleaners, paint removers, degreasers, and mold release formulations. The use of methylene chloride in aerosol propellant mixtures has been further discussed in a paper by Skrypa and Shannon(3). The amount used in aerosol formulations may run from 20% up to 50%, with 30% by weight a typical average figure. The range of methylene chloride requirements for typical usage in terms of various daily production capacities is shown in Table I. These requirements are also indicated in terms of 55-gallon drums and 30,000-pound tank-truck loads.

Storage Tanks

The storage of methylene chloride is quite simple. Methylene chloride at 70°F. has a liquid density of 11.06 lb. per gallon and a boiling point of 104°F. The vapor pressures at 120°

2. *Solvay Information Service Bulletin*, No. 2-56, 3-22-1956
3. Skrypa, M. J. and H. K. Shannon, "Methylene Chloride in Aerosol Propellant Mixtures," *Soap and Chemical Specialties*, 121, 32 July 1956.

TABLE 1
METHYLENE CHLORIDE IN AEROSOL PRODUCTION

	Assumed Production Capacity of 12-oz. Units Per Day			
	10,000	*15,000*	*20,000*	*30,000*
Formulation Wt. in lbs.	7,500	11,250	15,000	22,500
Methylene chloride use per day, lbs. (Assume 30 Wt. % in formulation)	2,250	3,375	4,500	6,750
Methylene chloride use per 5-day week, lbs.	11,250	16,875	22,500	33,750
Cost of tanktruck load @ $0.1175/lb.	$1,322	$1,983	$2,644	$3,966
Cost of drums (carloads) @ $0.1325/lb.	$1,491	$2,236	$2,981	$4,472
Cost of drums (less than carloads) @ $0.16/lb.	$1,800	$2,700	$3,600	$5,400
Gallons per 5-day week	1,040	1,530	2,040	3,060
Number of 55-gallon drums required per 5-day week	19	28	37	56
Days required between deliveries 30,000 lb. tanktruck load	14	9	7	4.5
Savings of tanktruck over carload lot drums	$ 169	$ 253	$ 337	$ 505
Savings of tanktruck over "less-than-carload lot" deliveries	$ 478	$ 717	$ 956	$1,434
Savings of methylene chloride over use of P-11* @ $0.20/lb. based on tanktruck deliveries	$ 928	$1,392	$1,856	$2,784

*P-11 is trichloromonofluoromethane.
Note: Costs and Savings are for a 5-day week.

TABLE II
BULK STORAGE OF METHYLENE CHLORIDE,
COST, SAVINGS and PAYOFF TIME

Tank Size Gallons	*Tank Cost (b) Dollars*	*Payoff Time in Weeks at Minimum Savings (a) for Following Daily Production in 12-Ounce Units*			
		10,000	*15,000*	*20,000*	*30,000*
4,000	2500	14.8	9.9	7.4	4.9
5,000	2800	16.6	11.1	8.3	5.5
7,000	3500	20.7	13.8	10.4	6.9
9,000	4000	23.7	15.8	11.9	7.9
Minimum Savings (a) dollars/week		169	253	337	506
Maximum Savings (c) dollars/week		928	1,392	1,856	2,784

(a) Basis 30 per cent by weight of methylene chloride in formulation. Savings due to use of tank truck or tank car loads at $0.1175/lb. replacing carload shipments in drums at $0.16/lb.

(b) Approximate cost of tanks installed with accessory piping and equipment. Actual costs will vary with location and other requirements.

(c) Savings in dollars per week where methylene chloride replaces propellant 11 at $0.20/lb. based on tank truck loads.

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genetron 11 TRICHLOROMONOFLUOROMETHANE
genetron 12/11 MIXES
genetron 114A DICHLOROTETRAFLUOROETHANE
genetron 12/114A MIXES
genetron 142B MONOCHLORODIFLUOROETHANE
genetron 142B/114A MIXES
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GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

and 130°F. are 5 and 8.9 psig respectively. This solvent can be handled in all common construction materials, except aluminum.

For best practice, a storage tank meeting the A.S.M.E. code for unfired pressure vessels may be employed. Where A.S.M.E. code tanks are used, they should be designed for 15 to 20 psig working pressure. In many areas a non-code vessel could be satisfactory. This choice will depend on local codes and regulations.

It should be specified that new tanks be sandblasted to remove scale. Either horizontal or vertical tanks may be employed, though the latter save space and are easier to check for inventory purposes. Such tanks are available from a number of vendors.

The standard shipping containers for bulk handling are 4,000, 6,000, 8,000 and 10,000 gallon tank cars (I.C.C. Spec. 103 and 103W) containing 44,000, 66,000, 88,000 and 110,000 lbs. respectively; and tank wagons containing 11,000 to 33,000 lbs. A typical horizontal tank storage installation is shown in Figure 1.

Tank cars can be easily unloaded using a centrifugal type pump with a flooded suction. In good practice, a vapor return line from the receiving tank back to the shipping tank is employed. The usual precautions of keeping lines, pumps and containers dry, employed with all standard propellants, should be used. Other useful information on bulk handling techniques can be found in the trade literature (1 & 4).

The engineering companies(5), who have handled the installation of aerosol production lines, have had extensive experience in setting up bulk storage for methylene chloride, and much useful technical assistance on details may be obtained from the vendors.

Safety Practice

As with any bulk storage of organic solvents, certain common safety precautions should be observed. Methylene chloride vapors, like those of other halogenated solvents, are heavy and can form toxic vapors in the presence of flames. Storage tanks or pipe systems that have held methylene chloride should not be welded unless the vapors have been completely flushed out of the system. There must be provision for good ventilation if the material is used in a confined area. Any leaks in the piping system should be taken care of promptly. More detailed information on toxicity and handling details can be found in the trade bulletins(6).

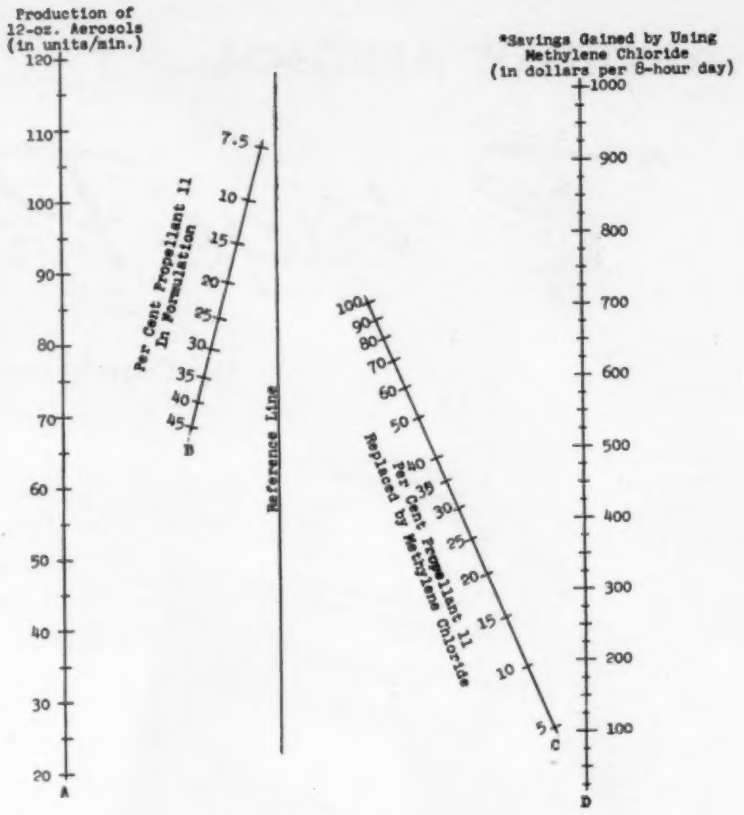

Figure 2 Savings Gained by Use of Methylene Chloride in Aerosol Production

*Based on October 1956 material costs. To reflect any future changes in these prices use the following formula. (10.15) (Savings found scale "D") (cost per pound of propellant 11—cost per pound of methylene chloride)=Savings based on "new" prices.

To Use

1. Locate point on "A" scale representing unit production.
2. On "B" scale locate per cent Propellant 11 in formulation.
3. Lay rule or straight edge on these points and extend line to intersect the reference line.
4. Connect this point on the reference line with appropriate value on "C" scale and extend the line through "D" scale and read savings.

Savings

The two savings to be considered in using Methylene Chloride in bulk are:

1. Savings effected by use of Methylene Chloride as a replacement in full or in part for Propellant 11.
2. Savings achieved by bulk shipments over purchasing and handling in drums.

The savings gained by using methylene chloride in comparison with the use of Propellant 11 can be related to production in 12-ounce units per

(*Continued on Page* 49)

4. Manual Sheet TC-7, "Tank Car Loading and Unloading Platforms," Manufacturing Chemists' Association, Inc., Washington 5, D. C.
5. Wallace Company, Bridgeport 8, Connecticut
6. *Solvay Product Development Bulletin CM-1*, Solvay Process Division, Allied Chemical and Dye Corp., 61 Broadway, New York 6

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AEROSOLS ... in Review

SEVENTEEN representative insecticidal aerosol formulations are listed in the new *Pyrenone Facts Folder*, issued last month by the Fairfield Chemical Division of the Food Machinery & Chemical Corp., New York. The 20-page folder also includes a complete section on "Aerosols and Pressurized Sprays."

"To meet the requirements for use of aerosols in households, food processing plants, vestibules of food plants, in dairy barns, and on dairy animals, in milking parlors and food stores, aerosol must be:

1. Free from hazards of toxicity to man or animals
2. Effective in small dosages
3. Free from odors and skin irritants
4. Acceptable to government regulatory authorities."

Pyrenone, according to the booklet, satisfies these requirements better than other available materials. "Evidence of the truth of this statement is the fact that about 90% of all insecticidal aerosols contain piperonyl butoxide, with either pyrethrins or allethrin alone, or in combination with other active ingredients.

"A good example of a pressurized spray is a 12-ounce 'cow-bomb.' It will treat 100 cows at the rate of 1½ seconds application on each side of the animal. Net result of the treatment is to kill horn flies, mosquitoes, and gnats.

Among the representative formulations in the new booklet are the following:

HOUSEHOLD PERTHANE BOMB

	Percent
Pyrethrins	0.10
Piperonyl butoxide	0.80
Dimethyl diphenyl dichloro-ethane	1.90
Related reaction products	0.10
Beta butoxy beta thiocyano diethyl ether	1.00
Deodorized base oil	11.10
Propellant	85.00

HOW PREPARED

	Lbs.
Pyrenone Aerosol Conc. 40-5	2.0
Perthane (100% basis)	2.0
Lethane 384 Regular	2.0
Deodorized base/oil	9.0
Propellant	85.0
	100.0

PRESSURIZED PET SPRAY

	Percent
Pyrethrins	0.06
Piperonyl butoxide	0.48
Methoxychlor*	0.50
Petroleum distillate	4.66
Methylated napthalenes	4.30
Propellant	90.00

*Equivalent to 0.44%, 2, 2 bis (p-methoxyphenyl) 1, 1, 1,-trichlorethane and 0.06 other isomers and reaction products.

HOW PREPARED

	Lbs.
Special Aerosol Conc. BP-921	10
Genetron or Freon 11 and 12 (50:50)	90
	100

PYRENONE COW BOMB

	Percent
Pyrethrins	0.5
Piperonyl butoxide	4.0
Deodorized base oil	25.5
Propellant	70.0

HOW PREPARED

	Lbs.
Special Aerosol Conc. BP 682	30
Propellant	70
	100
or	
Pyrenone Aerosol Conc. 40-5	10
Petroleum base oil	20
Propellant	70
	100

A GENERAL increase in the use of glass aerosol containers in the pharmaceutical and toiletries field was predicted in the January issue of *The Glass Packer*. In an article reviewing the 1956 glass container picture, the magazine cited the successful introduction of several aerosol pharmaceuticals and improvements in propellant and formulation knowledge as factors contributing to a 1957 rise in the use of glass aerosols in these fields.

"The outlook for glass containers in the drug industry is for continued stability, perhaps with a slight increase in its share of total shipments . . . Unlike the chemical specialties, drugs in liquid form favor glass, whether aerosol or not."

The article declared further: "The toiletries field is another in which glass containers are benefited by the aerosol package. The potential in aerosol toiletries has yet to be reached, for this type of package is still unknown among a large number of users of these products."

Commenting on glass container prospects in general, *The Glass Packer* quotes C. C. Merrifield, president of The Econometric Institute, Inc., who predicts a 3% increase in total glass container shipments for 1957.

In this section we will regularly abstract the increasing number of articles on aerosol topics which are beginning to appear in various trade publications. While many of the articles are necessarily introductory in character, and often include considerable material already quite familiar to those in the aerosol business, it is felt that a useful purpose will be served by setting up a central clearing point through which it will be possible to keep track of what is being written on aerosol topics. It will be helpful if readers will call our attention to articles which we may miss. *The Editor.*

VICTOR DiGIACOMO, writing in the January issue of *The Givaudanian*, monthly publication of Givaudan-Delawanna, Inc., New York, discusses a number of "Problems in Adapting Cosmetics and Fragrances for Aerosols." The article was adapted from a paper delivered before the December meeting of the Toilet Goods Manufacturers Association in Toronto, Canada.

Citing the tremendous rise in total aerosols produced, he declares: "The solubility problem is of utmost importance due to the effect it may have

on the valve mechanism. The perfumer must be certain that the ingredients of the perfume blend are soluble not only in the propellant which is to be used, but in the other components of the formulation as well."

Mr. DiGiacomo stresses the necessity of substitution of the resinous constituents and certain of the absolutes with more soluble counterparts. "Certain essential oils containing large quantities of waxes should be replaced by their terpeneless counterparts," he writes.

Among the other problems which are discussed in some detail are compatibility, irritation, possibility of corrosion, and the problem of "how the finished blend will present itself when dispensed from this packaging medium." On this last subject he says:

"When the fragrance is sprayed under pressure, complete dissemination of the entire perfume composition is accomplished almost instantaneously. This creates the necessity for a complete re-formulation of a product in order to re-balance the formulation and obtain the same olfactory stimulus when it is pressure dispensed as was obtained from a non-pressurized product."

WINSTON H. REED, president of The Reed Research Corp., Shelton, Conn., writing on "Aerosol Propellants" in the January issue of *American Perfumer and Aromatics*, declares that "The solvent and chemical characteristics of the propellants have played an important part in determining the type of formulations which could be made into successful products. The highly fluorinated, (but chemically stable) chlorohydrocarbons such as Propellant 12 and Propellant 114 have a limited solubility for some active ingredients used in aerosols. In the formulation of insecticides, for example, Propellant 11 and methylene chloride not only are used as diluents to lower the pressure of Propellant 12, but they also provide the higher solvency that simplifies production formulation practice."

"Anybody with any intelligence at all can operate one of these things. You just aim it at the bug and . . .

. . . squirt!"

(from *Service*)

Dr. Reed then goes into a discussion of the various types of aerosols, declaring that "aerosol packages are much like dry cell batteries in that a satisfactory service life is contingent upon consideration of the chemical behavior of the entire package. The aerosol packages with liquefied gas propellants are similar to refrigeration systems in some respects. In these aerosols, the propellant is at its boiling point and thermal gradients in the package will promote refluxing. This action leads to some interesting behavior corrosion wise, especially in emulsion systems."

Dr. Reed declares that much of the future development of new pharmaceutical, cosmetic, and food aerosols will hinge more on propellant research than on other considerations.

A RECENT edition of *Service*, A Review of Agricultural and Chemical Progress, published in New Zealand by Weedone Distributors, Wellington, declares that "aerosols today are well known on the New Zealand market and are proving popular for a number of applications."

An article entitled "The Aerosol Age" has this to say about the New Zealand situation: "The bug bomb has come to stay and is rapidly increasing in popularity throughout the world. First to appear in New Zealand was the 'Atmos' bug bomb, which still retains a well-earned place in the market. The aerosol idea was quickly extended to products other than insecticides. A vast variety of products are now being marketed in the form of aerosols, such as perfumes, scents, etc., some of which are already on the New Zealand market." land market."

The main discussion in the article, however, is devoted to the U.S. market, and the original development and phenomenal rise of pressurized packages in this country are traced in some detail.

THE "Compounder's Corner" for the January *Drug and Cosmetic Industry*, in an article titled "Aerosol Emulsions," goes into a discussion of the various features of what has come to be known as the "DuPont System" of formulation of water-based aerosols.

Use of the new system, the article says, permits formulation of many new products. It is said that the discharge can be "regulated from soft, space-type sprays to wet residual-type sprays. Water-soluble products applied to the skin will not wash off readily. Formulations can be developed without undesirable cooling when applied to the skin. Extraction of the active ingredient into a separate propellant phase is not a factor. Formulations can be packed without standpipes if desired."

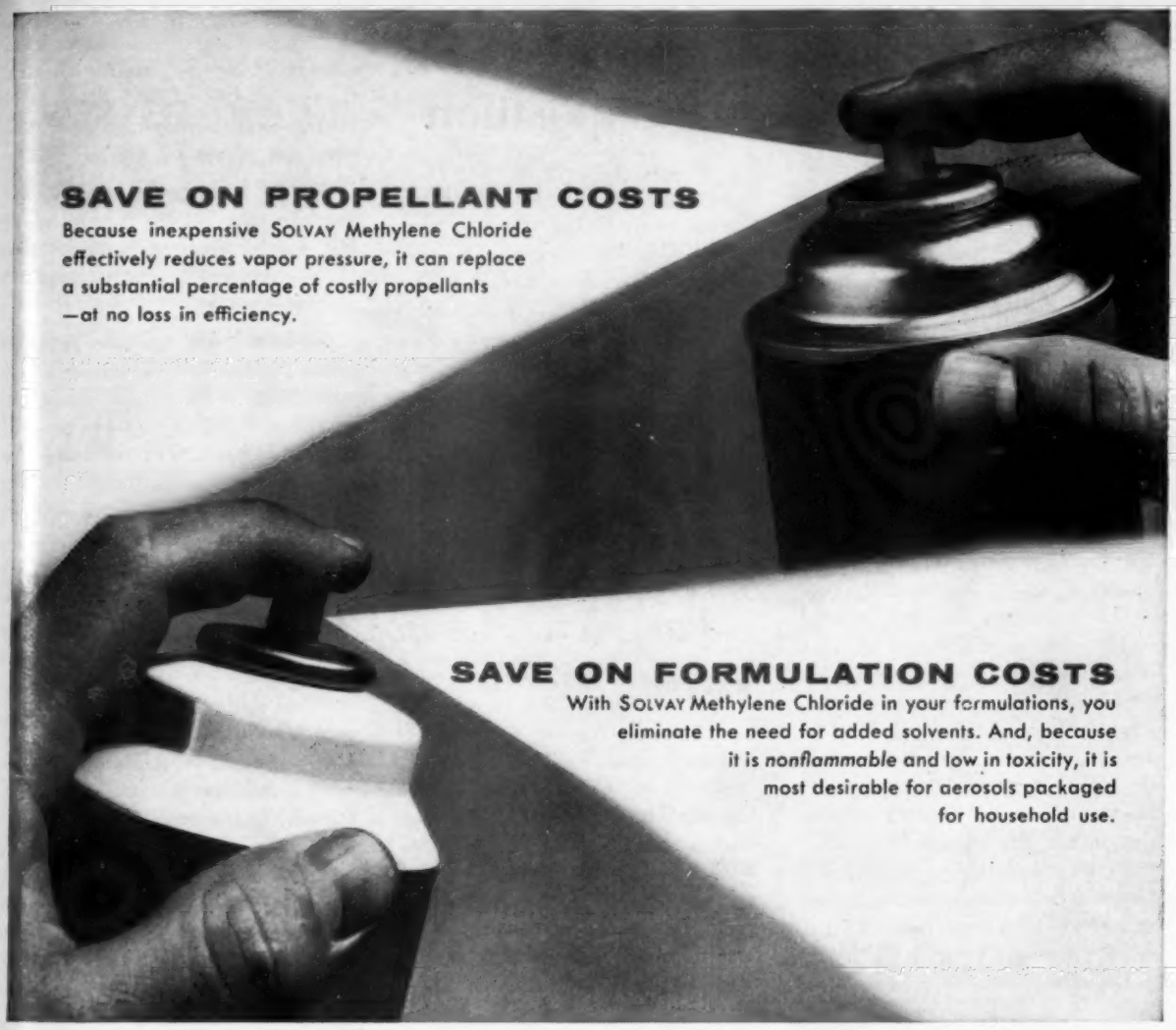
In the Dupont system, the article reports, the emulsifying agents found most useful are:

Emcol-14 — a polyglyceride ester of a fatty acid.

Span - 20 — sorbitan monolaurate and polyethylene glycol 400 di tri ricinoleate.

The first of these "has been used in most of the preliminary work because

(*Continued on Page* 49)



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- ☐ "Methylene Chloride in Aerosol Production" by Dr. Winston H. Reed
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EK-3

Program Details Announced For National Packaging Exposition

SOME 30,000 executives from more than 9000 companies are expected to see the more than 375 exhibits at the 26th annual National Packaging Exposition at Chicago's International Amphitheatre April 8-11. The exhibits, covering the entire scope of the packaging industry, will include more packagers and suppliers in the aerosol field than at any previous exhibition. Not only packages, but materials, machinery and equipment, and services and accessories will be displayed and demonstrated in the South Hall and the Exposition Hall of the Amphitheatre.

The exposition will run concurrently with the American Management's Association's 26th annual National Packaging Conference at the Palmer House, Chicago, April 8-10. The conference's program will explore the entire packaging field, emphasizing the need for coordinated research, design, and development.

Among the features of the exposition will be a complete aerosol packaging line—reportedly the first set up for any industrial exposition.

Registrants will be able to attend both events, since sessions are scheduled only on the mornings of April 8, 9 and 10. The conference will be opened by an analysis of packaging's dominant position in today's consumer market, by A. C. Nielsen, Jr., executive vice-president, A. C. Nielsen Co., Chicago. The problems of effective package design and product merchandising and their relation to consumer buying habits will be discussed by Mr. Nielsen in the light of findings by his market research organization.

Packaging of both industrial and consumer goods will be illustrated in case-history presentations by H. J. Heinz Co. and Bendix Aviation Corp., and Dr. Harry C. Trelogan, director, Marketing Research Division, Agricultural Marketing Service, U.S.D.A., will discuss problems of packaging perishable products.

Among the exhibitors from the aerosol industry are the Chisholm-Ryder Co., Continental Can Co., Crown Cork & Seal Co., The Dow Chemical Co., E. I. DuPont de Nemours & Co., Inc., General Chemical Division of Allied Chemical & Dye Corp., General Electric Co., Adolph Gottscho, Inc., Hope Machine Co., Mojonnier Associates, Inc., Owens-Illinois Glass Co., American Can Co., and a number of others.

The complete aerosol filling line will be operated by Mojonnier Associates, Franklin Park, Ill., in an exhibit combining the products of a number of suppliers to the industry. Purpose of the exhibit will be to illustrate to the packaging industry the simplicity of aerosol filling.

General Chemical's exhibit will combine many of the features of its last year's "Genetron" display, including current industry literature and information.

Chisholm-Ryder will have in operation a "CRCO New Way Model V-1" adjustable labeling machine. The other aerosol exhibitors are expected to announce details of their plans for the exposition during March.

(*Continued on Page* 57)

Carbide & Carbon Announces Plans For New Aerosol Propellant Unit

PLANS to build a 50 million pound per year installation to manufacture fluorocarbons were announced late last month by D. B. Benedict, president of Carbide and Carbon Chemicals Co., a division of Union Carbide and Carbon Corp., New York. The new fluorocarbons production unit is to be built at the Institute, West Virginia, plant of Carbide and Carbon and is expected to be in operation by the latter half of 1958.

"The market for fluorocarbons as pressurizing components for aerosols and as refrigerants has grown amazingly in the last twelve years," Mr. Benedict declared, in making the announcement. "With Carbide's planned unit, total capacity will exceed 300 million pounds per year. Production and sale of the fluorocarbons is our first commercial step into the promising field of fluorine chemistry. Our research teams are working vigorously to provide new fluorine chemicals to meet industry's increasingly stringent requirements."

With completion of the unit, Carbide and Carbon will join three other major chemical firms in the manufacture of fluorocarbon aerosol propellants. DuPont and General Chemical Division of Allied Chemical & Dye Corp. have been producing propellants since the 1940's, and they were joined in the field last year by the Pennsylvania Salt Manufacturing Co.

Union Carbide has been expanding considerably in recent years and in 1956 spent $144 millions for new construction in the United States, Canada, and overseas. The corporation's entry into the fluorocarbon field is based on the realization that the possibilities for fluorine chemistry include, in addition to propellants and refrigerants, a wide possible range of such products as lubricants, agricultural chemicals, and surface-active agents. The company announcement declares that it will devote an intensified research effort to the field of fluorine chemistry.

John A. Field, vice-president of Carbide and Carbon Chemicals Co., will supervise the marketing of the fluorocarbons in the refrigerant and aerosol propellant fields. A sales organization is being established, and it will be backed up by a customer service laboratory group.

According to Mr. Benedict's announcement, Union Carbide will bank on its long-term experience in handling liquefied and compressed gases. In addition, Union Carbide will employ an established distribution network, consisting of 120 bulk stations and more than 1000 warehouses from which locations will be chosen which will "provide prompt delivery service to users of propellants."

CSMA Announces May Meeting Plans, Lists Aerosol Committees

BASIC meeting schedules for the various divisions at the 43rd mid-year meeting May 20-22 were announced last month by the Chemical Specialties Manufacturers Association in a special bulletin to members. In addition to the Hotel Drake, site of the meeting and convention headquarters, additional reservations are being made by member companies at the Knickerbocker and the Seneca hotels.

Monday, May 20, will be devoted to meetings of the CSMA's board of governors, general committees, and administrative and divisional committees. A general membership session will be held on Wednesday morning, May 21, and luncheons Tuesday and Wednesday. The usual company "open house" will take place Tuesday evening, and highlight of the convention will be the cocktail party and banquet, to end the mid-year meeting on Wednesday evening.

The Aerosol Division will hold two half-day sessions, one Tuesday morning and a joint session with the Insecticide Division Wednesday afternoon. Speakers have not yet been announced.

LATER in the month the CSMA announced a complete list of committees for the Aerosol Division. Charles E. Bearch, chairman of the division, will continue as chairman of the Administrative Committee, assisted by E. J. McKernan, Seaquist Manufacturing Corp., vice-chairman. Other members of the committee are A. M. Adler, Helene Curtis Industries, Inc.; William T. Egan, Colgate-Palmolive Co.; and John G. Elvis, Sprayon Products Corp.

To head the other committees and subcommittees, the following were appointed:

Glass and Plastic Container Advisory Committee
Lawrence P. Hall Jr., "Kinetic Chemicals Division, E. I. duPont de Nemours & Co., Inc.

Aerosol Commercial Standards Committee
R. W. Svendsen, Chase Products Co., R. L. Chambers, Gulf Oil Corp., vice-chairman.

Legislative Committee Representative
H. W. Moburg, Rex Research Co.

Precautionary Labeling Committee Representative
John F. Brandenburg, Standard Oil Co. (Indiana)

Aerosol Publicity Committee
Frederick G. Lodes, Lodes Aerosol Consultants, Inc.

General Publicity and Public Relations Representative
Frank R. Zumbro, "Kinetic" Chemicals Division, DuPont

Product Survey Committee
Frederick G. Lodes, Lodes Aerosol Consultants, A. S. Pero, Fluid Chemical Co., Inc., vice-chairman.

Program Committee
E. J. McKernan, Sequist Manufacturing Corp., Joseph C. Pizzuro, Precision Valve Corp., vice-chairman.

Membership Committee
H. C. Tull, Crown Cork & Seal Co., Inc.

Publication Advisory Committee
Dr. Ralph C. Downing, DuPont "Kinetic" Chemicals Division.

Post Office Policy Committee
Charles E. Beach, John C. Stalfort & Sons, Inc.

Scientific Committee
J. J. Buchanan, Continental Can Co., Inc., Walter C. Beard Jr., Risdon Manufacturing Co., vice-chairman.

Subcommittees

Definition & Terms Subcommittee
Ralph C. Downing, DuPont "Kinetic" Chemicals Division.

Methods of Clinch Measurement and Effects on Sealing Efficiency
H. R. Umstead, Clayton Corp.

Filler Safety
Frederick G. Lodes, Lodes Aerosol Consultants.

Glass Container
Walter C. Beard, Risdon Manufacturing Co.

Insecticide Standard Methods
Montford A. Johnson, Peterson Filling & Packaging Co.

Protective Coating Standards
David S. Tillotson, Pennsalt Chemicals.

Methods for Determining Particle Size
F. W. Blodgett, DuPont "Kinetic" Chemicals Division.

Personal Products Standard Methods
Victor DiGiacomo, Givaudan-Delawanna, Inc.

Post Office
Walter C. Beard Jr., Risdon.

Special Committee on Pressure Determination
Pete Clapp, Western Filling Corp.

Public Regulations
W. Earl Graham, Crown Cork & Seal Co., Inc.

Safe-Fill
J. J. Buchanan, Continental Can Co.

Unofficial Rules and Regulations for Aerosols
R. V. Sharpless, Gulf Research & Development Co.★

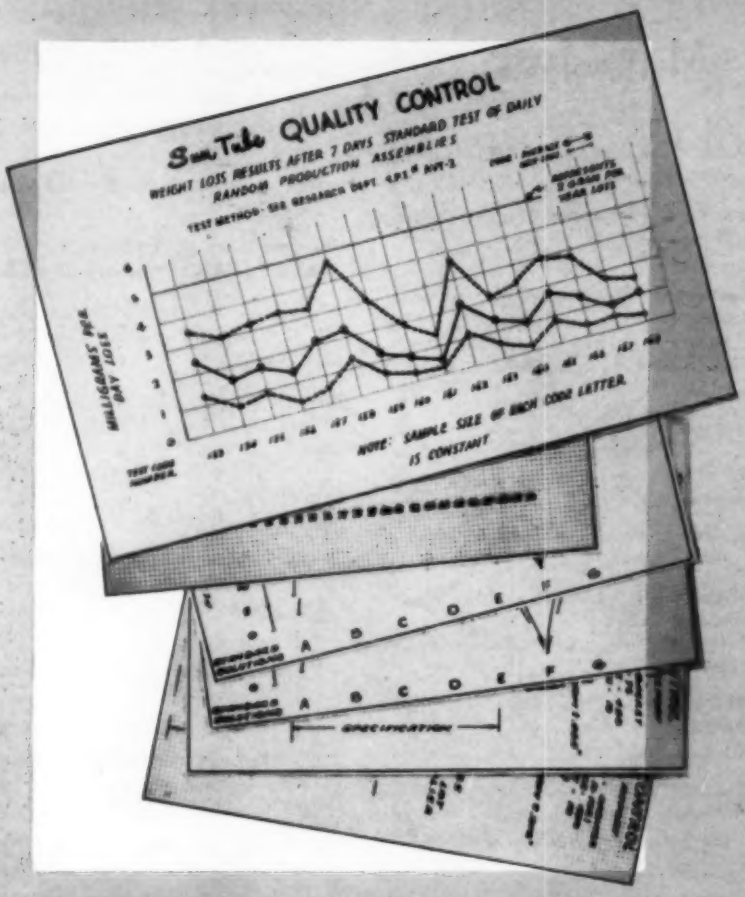
Glade Wins Package Award

"Glade" the new aerosol home air freshener introduced recently by S. C. Johnson & Son, Inc., Racine, Wisconsin, has been awarded one of the prizes in the Third American Package Design Competition, sponsored by the Package Designers Council. The Johnson product received first prize in the category of "chemical household products."

Award presentations were made at a luncheon Feb. 15 at the Plaza Hotel in New York, and all packages considered were exhibited until Feb. 20 at the Cooper Union Museum for the Arts of Decoration.

The product is packaged in a six-ounce Crown container with a Precision valve. It was designed by Bruce Beck and William Harris.

The various product categories were considered on the basis of design, construction, consumer appeal, and merchandising effectiveness.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AEROSOL SALES DEPARTMENT

HILLSIDE
NEW JERSEY

Pressure Packaging Overseas

Dr. Tom C. Clark of Druk-Pak, Ltd., Zurich, relates some of the difficulties an aerosol producer encounters under Europe's intricate exchange system and national trade barriers

FOREIGN exchange difficulties are beginning to hit the little fellow in some of the smaller overseas countries, at probably his most vulnerable point — propellants. What causes this? There is plenty of propellant, and production is adequate for all foreseeable domestic and export requirements. However, these supply conditions are so strange to the U.S. scene, but so chronically endemic in the non-integrated overseas countries, that a brief review of a few case histories may be of interest, not only to our U.S. readers, but also to those in overseas lands contemplating the business.

When a U.S. loader needs propellant, cans, valves, chemicals, etc., he picks up a telephone. He may have to make two calls (but hardly ever more than three) and within 24 to 48 hours at least a token shipment to keep him going is on the way. He lives in a veritable paradise of available supplies, competitive suppliers, and ambitious, helpful salesman. Whether he needs piston rings or special gasketing material, they are quickly there by air express. In payment he sends a cheque in his own currency, which clears in normal course. His foreign counterpart in a similar situation is faced with an entirely different set of circumstances.

This man starts off with a proforma invoice which, upon receipt, he attaches to a complicated form which may later end up as an import license. When he gets this license he is in position to make another application for the foreign currency he needs to pay for the goods to be imported. All of this is handled by government agencies. With these papers in hand, he is in position to open the letter of credit in favor of his supplier in the foreign country. Now the supplier comes along with his own papers which normally include a customs declaration, sometimes an export permit, a certificate of origin and, of course, a formal invoice. Each of these papers is generally required in from six to eight confirmed and signed copies. Eventually, the goods get to their destination, but the plant of the man making the original order may have been taken down in the meantime. Such a situation now confronts loaders in some of the Scandinavian countries.

In Europe, propellants are available from only one supplier in Germany, England, France and Italy. Production is adequate, but other difficulties are always arising. Recently, for instance, the French government suddenly changed its transport regulations covering the types and kinds of pressure vessels in which the propellants are customarily shipped, leaving the French propellant manufacturer short-handed on cylinders. Due to the steel shortage and fabricators' order books, these manufacturers have only enough for local demand and the export turnaround with its time delays seriously ties up cylinder inventories. First result: the French manufacturer is out of the export market for months to come. Second result: the foreign importer has lost his French source of supply.

In the U.S., the filler simply turns to a competitive propellant manufacturer who generally welcomes the opportunity of increasing his business. This is not so in Europe. In the first place, imports are generally handled through exclusive agents who exclusively control certain accounts. They are far from anxious to share a business, which immediately eliminates any cooperation between importing agents. But why can't the out-of-business agent of the French supplier go directly to another manufacturer in another country, perhaps through a back-door transaction? He can, but here two further problems arise. First, he must somehow get around the exclusive representation of his competitive local agent. If this is accomplished, he must somehow get the right kind of foreign currency to pay for the import from the other country. Easy? Not exactly, and it requires a real expert — what is known as a "switch" expert.

The government offices with which he has been dealing for import licenses, foreign currencies, etc., have given him a quota of a certain amount of French francs. Other currencies become scarce, so he cannot pay in German marks, pounds sterling or Italian lire. He has to pay in French francs, which the manufacturers in

the other countries do not want. Here comes the first part of the "switch." By taking delivery in a neutral port and effecting what U.S. traffic agents call a "diversion in transit," he can put a new additional tag on the cylinder which infers that someone in France had something to do with the shipment. Thus he can bring it into his country under his approved papers. So much for the import, he still has the problem of how to pay for it?

From his purchaser he gets the coin of the realm, let us say Norwegian crowns. From his government, he gets French francs, but the vendor, a stubborn fellow who has made an exception in his favor, wants U.S. dollars. Here comes the second part of the "switch," all perfectly legitimate, completely within the law and about the only basis on which these complicated trading transactions can be carried out. They account for no small part of international trade, but require an expert with a faultless reputation, intimate connections in many countries, and a wide trading experience. The tougher the controls, the better his business, but his own personal take is so small it cannot be found in the end price of the ultimate goods, i.e., a filled aerosol can.

How does he do it? First, he has to sell his French francs in a foreign market, and that usually means at a discount. If he sells in Amsterdam, he gets Dutch guilders (which he may be able to use for some other transaction), but what he really needs is U.S. dollars, a very hard currency. If he can transfer his guilders to Switzerland, he can buy dollars on the Swiss market, the only free one left in Europe. But then the question arises whether the French franc or the Dutch guilder has the most favorable discount rate against the Swiss francs (into which his money must be converted before he can buy the dollars). In between he may buy Portuguese sardines and Egyptian cotton in exchange for Norwegian aluminum or wood pulp which could eventually wind up in Brazil. He has to act quickly and he does. That is his business. Actual payments are not made until weeks later, when the goods have been shipped and all documents are at hand; but complete arrangements are settled with the order placement and a letter of credit must be opened payable in the desired currency. He takes his chances on intervening rate fluctuations, and the customer pays for his experience and risks at a very nominal rate, but he gets his goods.

While our example is set in terms of propellants, the same applies for cans, valves and chemicals, in many countries all imported. This is no exaggeration. We know of one aerosol equipment manufacturer who recently received an order from a South American country (where the import of such machines is not yet approved) specifying complete dismantling and the shipment of the individual parts as "gift packages" to at least 20 different addresses in the country — a physical impossibility, of course. But why this feverish activity and all this trouble and work to put a simple product in a little can on which you press or tilt a button? It is a sign of the times, testifying to the appeal of this new type of packaging which has so captured consumer imagination. If the U.S. builds a hundred thousand ton press or several thousand miles of inter-connecting highways, that is something for the U.S. alone, but if it invents a little glass bottle which enables a woman to spray just the right amount of perfume with the press of a button, or makes the cow give more milk in the stable through insect death by releasing a spray from an insecticide can, such simple things are for everyone. Hence the rush, organization, and effort.

The author's remarks indicate that Europe's aerosol industry is watching the discussions on Economic Union for the countries of Western Europe (currently underway in Belgium) with more than passing interest. Many of the problems related here will be substantially reduced under the terms of the various trade agreements under discussion.—Editor

The U.S. loader stays up nights figuring how to stay alive competitively — the overseas loader, how to get into and stay in production. His principal competition and difficulties are on the supplier end. The overseas loader has an ever increasing market and also knows its potential if the consumer end prices could only be more reasonably related to the purchasing power of his buying public. He knows he has a consumer product which must be consumer priced, but the middleman, the thorn between overseas manufacturer and consumer, stands in the way. Once this difficulty is solved (and it will be) his development will follow the same path of his U.S. counterpart.

A good example of this is the recent appearance in Zurich, Switzerland, of a hair brilliantine by Piro-Sol of Frauenfeld, Switzerland, in a six-ounce aluminum container at a price of Sw. Fr. 3.25 ($.75). This is the first such product in this size under the equivalent of $1.00 and the same thing is available in a plastic-coated glass bottle (German origin), two-ounce, for $0.68. However, this is a direct sale between manufacturer and department store — with no middleman — and the department store has only a normal mark-up. Hence the reasonable consumer price, and the store reported immediate reorders due to supply exhaustion.

Challenging our repetition of this position, some European publications have taken us to task, claiming we unfairly compare U.S. and overseas purchasing power. For example, they assert that the German mark (in average purchasing power) has a value about double that of a U.S. dollar. Or stated differently, that it costs one half as much to live in Germany as it does in the U.S. Although we cannot speak from the experience of having lived in Germany, we do know, from our frequent visits there, that a pound of butter, a dozen eggs, a pair of shoes, a suit of clothes, etc., cost about the same, quality for quality, as they do in the U.S. We *do* concede that at the end of the year, rents and taxes all included, one

(*Continued on Page* 55)

Consultant's Corner

by Robert A. Foresman, Jr.

Rcle of Specialty Containers

UNTIL 1953 the aerosol industry was practically bound to the containers made by the tin can industry. While many had considered using glass containers by this time and laboratory procedures employing glass bottles had been used for several years, it was not until the almost simultaneous release of the Zonite ultra low pressure system in uncoated glass and the Wheaton Plastic coated bottle, for general use at pressures below 25 psig., that packaging latitude as such was introduced.

We are sometimes inclined to forget that our industry is in reality simply a facet of the packaging industry and that the essence of package appeal lies in the appearance of the package to the almost complete exclusion of all other factors.

Our industry has arrived at the point where the dispensing characteristics are moderately well known and where there is considerable competition among aerosol packages (in any given field) for the consumer's eye. This leads to the conclusion that, the more container variety available to the aerosol filler, the better.

Plastic packages appeared on the commercial scene in the summer of 1955 under the label of the Angelique Satin Perfumes—White, Gold, Black and Red. This package is made of melamine compression molded. While there were the usual problems incident to any new product, this package has proved thoroughly satisfactory throughout its public life and in its present gold plated guise won the award in the Glass & Plastic Division of the 1956 Aerosol Package Contest.

Antedating the Angelique package, and now coming to fruition, have been various other approaches to plastic aerosol packages. A number of companies are experimenting with nylon containers and some have made samples available. Nylon offers such advantages as extreme toughness and relatively thin wall sections, although it is a rather expensive material.

Packages molded of thermosetting phenolic resins are also in the trial stage and offer considerable possibilities as a lower priced substitute for the melamine package, although from an odor standpoint they are sometimes a problem. Occasionally phenolic odor overtones will appear in the dispensed product.

METAL packages other than tin cans have appeared sporadically since the summer of 1950—originally the collapsible tube industry was the supplier. The early packages were two and four ounce impact extruded aluminum cylinders with valves an integral part of the package. Closing was accomplished by seaming the bottom. These packages, while expensive, were elegantly decorated and seemed at the time to offer real possibilities. Unfortunately small perfume and cologne packages had not penetrated the thinking of the industry to any extent and that, coupled with some unpleasant experiences with failure of the packages with other products led to their being almost entirely withdrawn from the market.

IN Europe, where aluminum is frequently more available than steel and where the economies of impact extrusion are appealing, the aerosol industry started off with a relatively large portion of the packages being made of aluminum. These containers (6 oz. and 12 oz.) were originally uncoated inside, but as failures indicated the need, interior coatings were added. Several types are in present use—the most interesting of which are, to me at least, the one piece units, interior coated and made for use with standard one inch caps. They are made by necking in the open end of an impact extruded cylinder and then rolling a bead onto the necked-in portion to take the cap. Sizes up to 12 ounces are in use, and larger sizes are not impossible. I hope to see these being made while I am in Europe this spring.

Ironically the aluminum container industry in the United States was finally sparked for an all out production and promotion effort by the European activity. Last December at the CSMA convention several aluminum containers were shown — some of which had been known to the industry previously. A newcomer to the field as far as the general industry was concerned was the "Varipak" made by the Hunter Douglas Division of Bridgeport Brass. These containers were on display in a series of colorful exteriors and a wide range of shapes. An innovation that will be appreciated is the glass aerosol bottle corkage dimension supplied on the smaller aluminum tubes, making them interchangeable on filling equipment with the glass units.

The stainless steel containers introduced by Philip Meshberg's Emson Research, Inc., offer some very great possibilities for many products. Ordinarily fabrications of stainless steel are more expensive than those of competitive materials, but in this case manufacturing economies may well keep this barrier at a minimum or remove it altogether. I hope larger units will be forthcoming on an economical basis.

(*Continued on Page* 57)

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NEWS of Pressure Packaging

Ungerer Names Hagelin

Roy W. Hagelin, last month was named general sales manager by Ungerer & Co., New York, manufacturers of essential oils and aromatics. In his new position he will also supervise the firm's advertising program.

He had been attached to the technical staff of Sunkist Growers, Inc., Ontario, Calif., and prior to that had been associated with Dodge and Olcott Inc. for 16 years.

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VCA to Enlarge Main Plant

The Valve Corp. of America, Inc., Bridgeport, recently announced plans for a major expansion of its main plant. The expansion program, announced by Philip H. Sagarin, VCA president, will increase the company's production facilities by at least 50%, totaling more than 50,000 square feet when completed.

Mr. Sagarin said VCA has decided on the expansion because of stepped-up demands of old and new customers, and a probable "marked rise as more and more companies turn to pressure packaging, especially in the pharmaceutical and biological fields."

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Name Salganik to New Post

Joseph Salganik has been elected executive vice-president of Hazel Bishop Inc., New York cosmetic manufacturers. He had been sales manager of Revlon, Inc.

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Nat'l Spray Can to Expand

National Spray Can Filling Corp., Brooklyn, N. Y. last month announced that it will install three new filling lines in April at the firm's plant at 1238 East 14th Street, Brooklyn. Two of the lines will be pressure fill and a third cold fill to handle National's complete line of pharmaceuticals apart from the company's other product types.

At the same time the company president, Harry Richards, announced the appointment of Simon Ackerman as sales manager. Mr. Ackerman had been with Spray Mist, Brooklyn, which was taken over by National Spray Can last year.

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SCC Meets in New York

"The Negro Market and Cosmetics" was the principal topic at the February 27th meeting of the New York Chapter of the Society of Cosmetic Chemist, held at the Brass Rail Restaurant. The guest speakers were William P. Grayson, Eastern manager of Johnson Publications, and A. J. Morgan of Apex Hair and News Co. Problems and recent trends in advertising, market research, and development of hair products for the Negro market all were discussed.

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Gregory Joins Valve Co.

Joseph Gregory, formerly supervisor of the custom filling division of Chase Products Co., Maywood, Ill., was recently appointed sales manager of Newman-Green, Inc., Addison, Ill., valve manufacturers. Prior to his position with Chase Products, Mr. Gregory was with Aeropak, Inc., Chicago, and Continental Can Co., New York.

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Named to Presidents' Group

H. R. Shepherd, president of Aerosol Techniques, Inc., Bridgeport, Conn., was recently elected to membership in the Young Presidents' Organization, a group limited to men and women who became presidents of their companies before the age of 40, and whose firms have an annual revenue of at least a million dollars and a minimum of 50 employees. Mr. Shepherd is one of the first executives in the aerosol industry to be elected.

Rhodia Appoints Hickey

Michael J. Hickey, formerly technical director, Perfume Division, for Florasynth Laboratories, New York, last month was appointed perfumer at the New Brunswick, N. J., plant of Rhodia Inc., New York. Prior to his position with Florasynth, he was associated for three years with William J. Stang as chief flavor chemist, with DuPont as chemist in perfumes and flavors, and for ten and a half years was research chemist in flavors, perfumes, and raw materials at Fritzsche Bros., New York.

•

Emulsol Moves Main Office

Emulsol Chemical Corp., Chicago, manufacturer of surface-active agents, is currently in the process of moving its sales and administrative offices from 59 East Madison St. to larger quarters at 75 East Wacker Drive, as part of its 1957 expansion program. Phone number of the new office will be FInancial 6-2960.

The firm's parent company, Witco Chemical Co., of New York, has its Chicago offices at the same address. Emulsol's Laboratory will remain at 59 East Madison Street.

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Alpha Appoints SE Rep.

Alpha Engineering & Machine Works, Inc., Mt. Prospect, Ill., last month appointed The Hoshall Co., Atlanta, as its representative in the Southeastern U. S. The company, which has offices located in Atlanta, Charlotte, N. C., and Miami, Fla., will cover Florida, Georgia, Alabama, Tennessee, and the Carolinas. The Hoshall Co. is headed by Thomas L. Hoshall, Jr.

At the same time Alpha announced that Ove Orwoll, sales manager, has been assigned to a special project within the company. His successor as sales manager has not yet been named.

To help sell the products you package in Canco containers...

...Canco sponsors NBC NEWS on TV during 1957

—broadening the famous "oval" campaign to consumers!

This year, news-conscious America is seeing Canco's oval trade-mark on television—and learning why it symbolizes packaging leadership . . . how it helps everyone to "live better, more conveniently, for less money."

To tell its message, Canco has chosen NBC NEWS on TV, featuring Chet Huntley and David Brinkley. It is TV's *highest-rated* news show, carried by 89 stations with a potential audience of 35 million TV homes!

To get the full benefit of this powerful and dramatic campaign, make certain *your* containers carry the Canco oval—the trade-mark recognized by more and more consumers as their guide to quality containers.

Tune in the next Canco NBC-TV NEWS Show—March 11, and alternate Mondays thereafter. See your local newspaper for time and channel.

AMERICAN CAN COMPANY *New York • Chicago • San Francisco*

May Appointed to New Post

William F. May, formerly general manager of the non-food container division of the general sales department, American Can Co., New York, was recently appointed manager of manufacture of the company's Central Division, with headquarters in Chicago. He joined the company in 1938 and in 1946 was appointed supervisor of the firm's container research department, subsequently becoming supervisor of the enameling and decorating division in New York.

During 1950 he was special technical assistant in general manufacturing and superintendent of manufacturing in the Pacific division office. He was named manager of the non-food container division in April of 1956, and represented Canco at CSMA conventions.

•

Law Suit Concluded

A law suit brought against Precision Valve Corp., Yonkers, New York, by Acrolite International and Acrolite Products, Inc., was concluded Jan. 27 by a judgment in favor of Precision of "no cause of action." The suit charged alleged damages incurred by use of allegedly defective aerosol valves supplied Acrolite by Precision. (The suit was originally reported in *Aerosol Age*, June, 1956.)

•

Revlon's Earnings Rise

Revlon, Inc., New York, which became a publicly-owned company just a little over a year ago, recently reported record sales and earnings for 1956. Net earnings amounted to $8.3 million, an increase of 127% over the approximately $3.7 million reported for 1955. Charles Revson, president, said that an estimated $1 million expense of moving to a new plant was deducted from the '56 earnings before they were reported.

Mr. Revson reported that net sales for the year were $85.7 million, an increase of 66% over the previous year's figure of $51,646,796. Among the company's new product lines introduced last year were men's toiletries, baby products, and an expansion into the proprietary drug market by Thayer Laboratories, a division of Revlon.

New Aerosol Firm Founded in Denver

TITAN CHEMICAL INDUSTRIES, INC., Denver, a new Colorado aerosol company, was incorporated recently with the issuance of a public stock offering of 4½ million shares, valued at a total of $7½ million. One of the company's first announced projects will be operation of an aerosol plant for the manufacture of consumer products for sale in the Rocky Mountain area, reports *The Denver Post*.

The initial stock offering is reported to include 1½ million shares of founders' stock at $1 a share and 3 million shares of common stock at $2 a share. A total public stock offering of $11 million is expected.

Titan Industries is reportedly planning the construction and operation of five factories in Colorado during this year, most of them in the Denver-Boulder area. The company's board of directors has already approved construction of a research laboratory and two other unspecified types of plants.

"There is a great need for a locally-owned aerosol plant in this area," declares Harry W. Dorris, Jr., Titan director and the president of Olympian Securities, Inc., which is underwriting the Titan stock issue.

Dr. Joseph D. Park, Boulder research chemist, was elected president of the company's board of directors, and Everett Cole, Canon City banking and mining executive, president of Titan. The other directors include Dr. Paul L. Barrick of Boulder, a chemical engineer; former Governor and now State Sen. Walter Johnson of Pueblo; Henry L. Larsen, Denver, retired Marine Corps general; and Doctors Chester M. Himel, Menlo Park, Robert D. Engler, Pasadena, and George N. Tyson Jr., Claremont, all California research chemists.

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Whitney Co. Moves to Mass.

The L. A. Whitney Co., Inc., manufacturers' agents in packaging and processing equipment for the New England States, announced last month that they have moved to new quarters at 50 Kearney Road, Needham, Mass. At the same time the firm announced the addition of William A. White Jr., to its sales engineering staff.

Mr. White was formerly with the central technical department of Bethlehem Steel Co., the sales and engineering staff of White Fuel Corp., and prior to his new appointment was assistant to the chief engineer of the Rexall Drug Co. in Boston, Mass.

The L. A. Whitney Co., Inc. represents such manufacturers in the packaging and processing field as MRM Co., Inc., Resina Automatic Machinery Co., Inc., Conveyor Specialty Co., and a number of others.

Lodes Honored by Alumni Association

Frederick G. Lodes, president of Lodes Aerosol Consultants, Inc., New York, last month was presented with the Fordham University Alumni Association Science Achievement Award at the 103rd annual dinner of the Fordham College Alumni Association at the Hotel Biltmore, New York. He is shown receiving the award from Dr. George A. Brenner (right), president of the alumni association.

N. Y. Cosmetic Chemists Elect Officers

The officers of the New York Chapter of the Society of Cosmetic Chemists for 1957. Left to right are Vincent DeFeo (Dodge & Olcott), treasurer; William Lambert (*American Perfumer*), ex-officio; Warren Dennis (Shulton), chairman; Miss Maria Wiener (Fluid Chemical), secretary and Harry Iscoff (Van Ameringen Haebler) chairman-elect.

Aerosols in College Seminar

"Aerosols in Cosmetics," by Victor DiGiacomo, Givaudan-Delawanna, Inc., New York, will be one of a number of lectures in a special eight-week series of seminars to be given at St. John's University College of Pharmacy, Brooklyn, beginning March 13. Fee for the series, which will be held from 7-9 p.m. on Tuesday evenings, will be $25.

Among the other lectures of interest to the areosol industry are the following:

"Stability Testing of Cosmetic Formulations", Dr. Babu Patel, E. Fougera and Co.

"Deodorants and Sunburn Preventatives", Dr. Emil G. Klarmann, Lehn and Fink Products, Inc.

"Cosmetics for Men", Sabbat J. Strianse, Shulton, Inc.

"Permanent Waving Materials and Shampoos", Dr. Donald H. Powers, Warner-Lambert Pharmaceutical Co. and William Markland, John H. Breck, Inc.

"Perfumes and Colors in Cosmetics", Dr. Everett L. Saul, Bristol-Myers Co. and Dr. Samuel Zuckerman, H. Kohnstamm Co., Inc.

•

Predict Aluminum Use Rise

Increased use of aluminum in pressurized packages for such products as shaving creams, pharmaceuticals, hair lacquers, toiletries, and other personal and household products was predicted recently by Victor Muscat, president of Victor Metal Products Corp., and chairman of the board of Aluminum & Chemical Corp. The prediction was made with the announcement that both companies are expanding to meet the anticipated demand.

Aluminum & Chemical Corp. will soon begin construction of a plant for the manufacture of discs and slugs of aluminum, which are basic materials used in the manufacture of aluminum aerosol containers. Victor Metal Products will manufacture the aluminum cans by a new extrusion process. The company expects aluminum's non-corrosive qualities, its lighter weight, and increased shelf life to be major factors in the metal's capturing a "sizeable share" of the aerosol container market in the future.

•

Bristol-Myers Names Thomas

Ralph Thomas, former supervisor of the aerosol pilot plant at Colgate-Palmolive Co., Jersey City, N. J., was recently named director of packaging research at the Hillside, N. J., plant of Bristol-Myers Co., New York, manufacturing chemists.

•

Mojonnier Reorganizes Sales

Mojonnier Associates, Franklin Park, Ill., manufacturer of aerosol filling equipment, recently announced an expansion of its sales organization, and the establishment of new territorial offices in New York and St. Louis.

The New York office, under the supervision of Edward H. Zellar, will service New England, New York, New Jersey, Maryland, Pennsylvania, and Virginia. The St. Louis office, directed by John Bader, formerly of Clayton Valve, will administer sales and service in Missouri, Minnesota, Iowa, Kansas, Oklahoma, Arkansas, Mississippi, Louisiana and Eastern Texas. The Central States area of Michigan, Ohio, West Virginia, Kentucky, Indiana, Wisconsin, and Illinois will be serviced by Robert Hill, another new member of the Mojonnier staff.

Areas not covered by regional offices will be serviced by the home office at Franklin Park.

•

Standard Names Cooper

The appointment of Franklin H. Cooper as technical service director was recently announced by Standard Aromatics, Inc., New York, manufacturers of perfume and flavor materials. In his new position Mr. Cooper will supervise research in cosmetic and aerosol problems and advise on production and marketing problems.

Mr. Cooper was formerly associated with the quality control department of the Connecticut Chemical Research Corp., Bridgeport.

•

CSMA Nominating Committee

The Chemical Specialties Manufacturers' Association last month named nominating committees for 1958 election of officers, at the same time announcing that elections will be held at the association's mid-year meeting in May, in Chicago. The following have been named to serve on the nominating committee for the Aerosol Division: Charles E. Beach, John C. Stalfort & Sons, Inc., Clarence F. Carter, Continental-Filling Corp., Frederick G. Lodes, Lodes Aerosol Consultants, Inc., and Robert W. Svendsen, Chase Products Co.

•

Crown Appoints Tuttas

S. V. Tuttas, formerly division manager of sales of the Crown and Closure Division of Crown Cork & Seal Co., Philadelphia, recently was named director of sales for the entire company. He will make his office at the company's Baltimore office and will be responsible for the direction of company-wide sales policies and coordination of sales activities of the company's four divisions. He joined Crown in 1950, becoming manager of sales for the Crown and Closure Division in 1955.

William R. Fox, field sales manager of the Crown and Closure Division, succeeds Mr. Tuttas as division manager of sales in that division.

SET SIGHT on your AEROSOL POTENTIAL...

. . . . made even more promising by the use of fragrance materials specially created to lend heavenly, sales-compelling odor appeal to your aerosol packaged product. BUT, bear in mind, there's a lot more to this business of choosing the right aerosol fragrance than meets the eye. *Compatibility* of ingredients is a matter of design—not chance; *appropriateness* — a matter of experience, judgment and good taste. In fact, your choice of fragrance could well be the big difference between limited acceptance and a really stellar sales performance for your aerosol product. So . . . make no mistake in choosing the fragrance for that important job. Make no mistake in choosing the supplier best qualified to develop that fragrance for you.

—ALWAYS DEPENDABLE—
ODORANTS and DEODORANTS
for INDUSTRIAL and
TECHNICAL USE

▲

MADE-TO-ORDER FRAGRANCES
for PERFUMES, TOILETRIES
and COSMETICS

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SUPPLIERS of
AROMATIC CHEMICALS,
BASIC PERFUME and
FLAVOR RAW MATERIALS

FRITZSCHE Established 1871 **Brothers, Inc.**

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BRANCH OFFICES and *STOCKS: *Atlanta, Georgia, Boston, Massachusetts, *Chicago, Illinois, Cincinnati, Ohio, *Los Angeles, California, Philadelphia, Pennsylvania, San Francisco, California, St. Louis, Missouri, Montreal and *Toronto, Canada and *Mexico, D. F. FACTORY: Clifton, N. J.

Seeland Elected Penick V.P.

S. B. Penick & Co., New York, suppliers of insecticide raw materials, have announced the election of Frank Seeland as

Frank Seeland
Penick vice-president

vice-president. With the company since 1952, Mr. Seeland was appointed manager of the Agricultural Chemical and Insecticide Division in 1955. Under his leadership the division has expanded its operations and introduced such items as Sulfoxide, Ryania, Warfarin, and Pro-Noxfish(R).

•

Nylon Containers Praised

The American Management Association's three-day seminar of plastic packaging, held in New York in January, heard a report by William Ryan, DuPont development engineer, predicting that nylon aerosol containers would be on the retail counters in as little as five months.

Mr. Ryan pointed out that the comparative high cost of the material will necessitate that nylon be aimed only at the top bracket luxury packaging market now held by vinyl-coated glass bottles. He said that the advantages of unlimited color range, a large variety of possible shapes, printability and the fact that nylon containers are unbreakable will make them top candidates for this bracket of the packaging market.

Among the product types in which Mr. Ryan sees a considerable future market for the new nylon containers are colognes and other beauty preparations.

•

Bridgeport's Earnings Off

Sales and earnings of the Bridgeport Brass Co., Bridgeport, Conn., in 1956 declined slightly from those of 1955, the company's annual report revealed last month. The figures, which included the recently-consolidated subsidiary, Hunter-Douglas Aluminum Corp., listed a consolidated net income in 1956 of $4,659,821, as compared with $6,649,495 for the previous year. Net sales totaled $163.3 millions in 1956 against a figure of $172.9 for 1955.

Herman V. Steinkraus, president and board chairman, attributed much of the profit decline to an industry-wide reduction in the physical volume of brass and copper mill sales.

•

Revlon Names Two Directors

Revlon, Inc., New York, producer of toiletries and cosmetics, announced last month the election of Percy J. Ebbott and James Bruce to the firm's board of directors. Mr. Ebbott, a former president of Chase National Bank, is chairman of the trust advisory board of the Chase Manhattan Bank. Among the other companies in which he holds directorship are the International Paper Co., American Export Lines, Inc., Allied Store Corp., and Moore-McCormack Lines, Inc.

Mr. Bruce was U.S. Ambassador to Argentina from 1947 to 1949 and director of the Mutual Defense Assistance Program from 1949 to 1950. He is a director of American Airlines, Fruehauf Trailer Co., National Dairy Products Co., Republic Steel Co., and a number of other national companies.

•

Kipnis Resigns at O-I

Samuel Kipnis last month resigned as a director of the Owens-Illinois Glass Co., Toledo, to act as an independent consultant to manufacturers of the shipping container industry. He was president of the National Container Corp. for 28 years before it merged with Owens-Illinois.

Pennsalt Names Baer, Haslip

Jean W. Baer and John H. Haslip (in photo) were recently appointed to the sales staff of Pennsalt Chemicals' new line of

John H. Haslip

Isotron aerosol propellants. Mr. Baer, who will make his headquarters in New York and will represent Pennsalt in the Northeastern area, was formerly associated with van Ameringen-Haebler, Inc., as Paris export manager, and prior to joining Pennsalt was on the sales staff of George Lueders & Co., New York.

Mr. Haslip will handle sales of Isotron from the company's Chicago office.

To back up its field representatives, both of whom were trained at Pennsalt's Whitemarsh Research and Aerosol Laboratories, the company has established a sales-service aerosol laboratory headed by David S. Tillotson, who will be in charge of formulating new aerosol products or improving existing formulations. Engineering and propellant handling information will be the function of Richard C. Willson, Jr., who is in charge of Isotron Technical Service.

•

Stanley President Dies

Frank S. Beveridge, former president and board chairman of Stanley Home Products, Inc., Easthampton, Mass., died recently. He founded the company which now operates throughout North America, Puerto Rico, and Hawaii, in 1931 — two years after leaving Fuller Brush Co., where he held the position of vice-president of sales. Mr. Beveridge was born in Yarmouth, Nova Scotia.

— Convention Calendar—

Chemical Market Research Association, *Sheraton Hotel, Philadelphia*	March 12-13, 1957
National Packaging Exposition, *International Amphitheatre, Chicago*	April 8-11, 1957
Toilet Goods Association, *Waldorf Astoria Hotel, New York, N. Y.*	May 7-9, 1957
International Packaging Fair, *Amsterdam, Netherlands*	May 14-21, 1957
Chemical Specialties Manufacturers Association, *Drake Hotel, Chicago, Ill.*	May 20-22, 1957
Chemical Specialties Manufacturers Association, General Luncheon, *Commodore Hotel, New York, N. Y.*	Sept. 16, 1957
Chemical Specialties Manufacturers Association, *Hollywood Beach Hotel, Hollywood, Fla.*	Dec. 9-12, 1957

Who's Who in the Aerosol Industry

Walter E. Anderson is in his eighth year as sales manager of Aer*a*sol Products for the Bridgeport Brass Co., Bridgeport, Conn., leading manufacturers and marketers of aerosol insecticides, air refreshers and moth proofers.

Under Mr. Anderson's direction, Bridgeport's sales organization of sales agents and field supervisors has nearly doubled during this period, broadening distribution on leading products such as "Bug Bomb," "Goodaire" and "Slug-A-Bug" in both national and many foreign markets.

A native of Chicago, Mr. Anderson attended Northwestern University. After two years of hardware and grocery retailing, he joined Montgomery-Ward and spent nine years at their merchandising headquarters in Chicago as a buyer of seasonal hardware products. He then spent four years with a sales agency in Chicago. In 1949, he joined Bridgeport Brass as midwestern sales supervisor and in 1950 was moved to Bridgeport's headquarters as national sales manager.

A member and former chairman of the Aerosol Commercial Standards Committee of C.S.M.A., he believes that in spite of the tremendous growth of the aerosol industry in the past ten years, the industry can look forward to an even more fantastic growth, just as soon as some of the technical difficulties are overcome with advanced research in the fields of pharmaceuticals, cosmetics and particularly pressurized food packaging.

Edward H. Zellar, Eastern factory representative of Mojonnier Associates, Inc., Franklin Park, Ill., has worked extensively with leading U.S. and Canadian aerosol packagers in selecting and laying out new aerosol filling lines.

Born in Chicago, he attended the School of Business Administration of Northwestern University, and became vice-president of a Chicago factoring concern and director of a bank there. His business career was temporarily interrupted by World War II, during which he was an artillery observation pilot in the Pacific theatre. In 1947 he joined Mojonnier and is now a director of that organization.

Since his company's line of aerosol machinery includes substantially every item of equipment needed for a complete aerosol operation, it is not uncommon for a new customer to approach Mr. Zellar with the request: "Over there we are going to build a new plant addition. You tell us everything we need in the way of machinery to turn out finished aerosols."

With the recent expansion of the Mojonnier sales staff, Mr. Zellar concentrates his activities in the Eastern States and Canada, and often works with representatives of European concerns entering the field. He is a familiar figure at CSMA conventions.

Perfumers Plan Symposium

The American Society of Perfumers will hold its third open "Symposium on Fragrance" at the Essex House, New York, on Wednesday, March 20 at 2 p.m. The tenth anniversary of the founding of the society will be celebrated by the theme of the symposium, "What's Ahead in Fragrance," in which a group of industry experts will discuss recent progress in their fields of specialization, analyze current trends, and attempt to outline probable future lines of development.

Among the speakers will be:

Camille H. Bourguet, American Aromatics, Inc.—"The Perfumer's Art—The Language and Indexing of Fragrance"

Harry C. Saunders, Givaudan-Delawanna, Inc.—"Man-made Odorants—The Future of Creative Synthesis"

Ernst T. Theimer, van Ameringen-Haebler, Inc.—"Instrumental Analysis in the Perfume Industry"

H. Gregory Thomas, president of Chanel, Inc.—"Fragrance Types and Merchandising Methods"

Amos Turk, Consulting Chemist—"Household Fragrances — Odor Preferences Among Consumers."

Mr. Thomas, a past president of the Fragrance Foundation, will receive an honorary membership in the society in recognition of his outstanding contributions to the perfumery and cosmetic industries.

in **TMC** *Industrial Size Disposable* **AEROSOL CONTAINERS**

INSECTICIDES, AIR FRESHENERS AND CHEMICALS

CLOTHING, RUG AND UPHOLSTERY CLEANERS

FIRE EXTINGUISHERS AND TORCHES

Success stories are being built around a constantly expanding list of chemical specialties, paints, insecticides, room fresheners, emulsifiers and other products, thanks to aerosol packaging in TMC industrial size containers.

Ability to handle working pressures up to 240 lbs. per square inch also makes it possible to market powdered, viscous and semi-fluid materials such as belt dressings, caulking and gasket sealers.

TMC Disposable Cylinders save time and cost in shipping, stocking and distribution. Standard 55 and 75 cubic inch industrial sizes are ICC approved.

Write for the latest thinking on this new development in marketing under pressure for industry.

TUBE MANIFOLD
CORPORATION
419 Bryant St., N. Tonawanda, N. Y.

Fabricators of Tubular Products Since 1920

VCA Appoints White

The Valve Corporation of America, Inc., Bridgeport, Conn., last month announced the appointment of Arthur M. White as quality control director. He will be responsible for the company's quality control program, including application of statistical quality control, inspection personnel, and vendor rating.

Prior to joining VCA Mr. White served as quality control engineer in charge of gage control for the Underwood Corp. and before that as a chief inspector for Norden Laboratory Corp. He was also a quality control supervisor in U.S. Army Ordinance for ten years.

•

Beckman, Statham to Merge

A proposed merger between Beckman Instruments, Inc., Fullerton, Calif., and Statham Laboratories, Inc., Los Angeles, subject to approval of Beckman stockholders and completion of legal details, was announced early last month. The transaction will involve the exchange of up to 400,000 shares of Beckman stock for the entire interest in Statham, which is privately owned.

Beckman makes precision components, measuring and control instruments, etc., including the gas chromatograph used in analysis of cosmetic aerosols. Statham manufactures pressure transducers and similar devices used in aircraft.

•

ConCan Reports Best Year

The highest sales and earnings in its history for a single year were reported by the Continental Can Co., New York, in a preliminary annual statement last month by Gen. Lucius D. Clay, board chairman. With inclusion of operations of the Hazel-Atlas Glass Co. and Robert Gair Co., which were merged into ConCan last year, sales exceeded the billion dollar mark for the first time in the company's history.

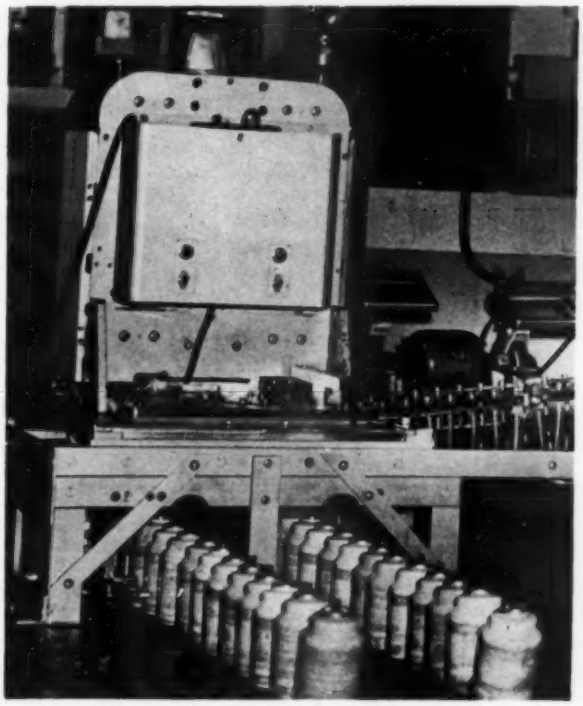
Combined sales for 1956 were reported as $1.01 billion, 8.7% above the $929.4 million combined volume for 1955. Combined net income for last year was $43.1 million.

Products—Processes—Bulletins—

Stanley Home Products Announces New Valve Feeder

A new valve feeder and inserter that assembles valves into aerosol cans at speeds up to 120 containers per minute was announced last month by Stanley Home Products, Inc., Easthampton, Mass. The new machine is said to be able to handle valves (with and without dip tubes) with a minimum of adjustments.

It is equipped with a no can—no valve device and is so constructed that an automatic sorter can be installed. Developed in connection with Stanley's own aerosol line and production-tested at their own plant, the machine will handle 6, 12 and 16-ounce containers, working with either a double or single line aerosol filler. The new valve feeder requires two people to feed valves at the speed of 120 containers per minute.



In the photograph cans are seen discharging from the valve inserter in double line, with valves in position in the cans.

D&O Begins Feature Series

A new series of feature articles entitled "The Fragrant Life" began in the February issue of *D & O News*, a monthly publication of Dodge & Olcott, Inc., New York. The series, which deals with various problems of industrial perfuming, began with a discussion of aromatics in the automotive field.

The article points to the 1955 figure of 125,000 automotive wholesalers, dealers and repair shops, and to the estimated 220,000 gasoline service stations which contribute to the general automotive market, and declares: "Insistence that odor not be perfumy' is almost universal and since most of these products sell in a highly competitive market, cost of mask or reodorant must be kept at an absolute minimum."

•

New Nipple Chuck

Mercury Hydraulics, Inc., Denver, Colo., recently introduced its new "Speed-Thru" nipple chuck, which is designed to supply "chemical plant maintenance men needing a standard or special length pipe nipple that can be made on the job with either hand or power threaders." The chuck is described as precision machined, with all wear parts made of hardened steel. During service tests it is reported that one chuck was used to make over 2000 nipples without wear defections.

New Emulsifier Introduced

"Emcol 14," a new emulsifier which reportedly will permit many more products to be packaged in aerosols, was announced last month by Emulsol Chemical Corp., 75 East Wacker Drive, Chicago, manufacturers of surface-active agents.

Emulsion formulations using fluorinated hydrocarbon propellants with "Emcol 14" are said to create desirable sprays with minimum foaming and container corrosion. The company reports that "Emcol" assures a satisfactory sprayable emulsion system for water-soluble products, thereby making formulations practical for many products with characteristics suitable for aerosol packaging. Further details on the new emulsifier are available in the company's technical bulletin No. 49, titled "Application of Emcol 14 as an Emulsifier in Aerosol Emulsions."

•

Pfizer Acquires New Patent

Chas. Pfizer & Co., New York, last month acquired a process patent for a new method of manufacturing allethrin, an insecticidal component for spray and aerosol application. Covered in U.S. Patent 2,768,967, the new process begins with an acetone dicarboxylic acid ester which Pfizer manufactures from citric acid.

Although Pfizer does not plan to produce allethrin, company spokesmen said the new production method will be of interest to prospective licensees seeking either another source of starting material for the insecticide. or a possible "more economical" means of producing it. The patent was issued to Dr. A. Bavely and Erich C. Schreiber of Pfizer's chemical research laboratories.

•

New Cooler Announced

A new line of liquid coolers designed to handle viscous or slurry type liquids was recently announced by Doyle & Roth Manufacturing Co., Brooklyn, N. Y. The cooler, which is available in size ranges from 5 to 100 h.p., is reported to be especially suited for refrigerant cooling in aerosol filling operations. It features a complete refrigeration cycle.

New Fritzsche Booklet

Fritzsche Brothers, Inc., New York, recently issued its new "Pharmaceutical Flavor Guide," a 52-page illustrated booklet to be used as a reference manual by manufacturers of ethical and proprietary medicines. In addition to a general discussion of the general flavor types, the booklet lists more than 200 different flavoring suggestions for pharmaceuticals.

The preface to the booklet describes it as "the first cataloguing of a really comprehensive list of flavors developed for and proven adaptable to the flavoring requirements of modern pharmacy."

•

Weather Coating Introduced

"Maintz," a new coating which is reported to provide protection against severe chemical and weather exposure, was introduced last month by West Chester Chemical Co., West Chester, Pa. The new material, which is based on DuPont's chlorosulfonated polyethylene in combination with silicone and other resins, is said to withstand extremes of expansion or contraction without cracking and to be able to retain this property at temperatures as low as —40°. It is said to be highly resistant to oxidation, ozone, weathering, acids, chlorine, alcohols, ethers, grease, and caustic solutions.

•

JG Issues Data Sheets

Four new illustrated data sheets were issued last month by the JG Machine Works, New York, to outline the characteristics and performance of the firm's line of aerosol filling equipment. The data sheets describe the "Univer-Seal," a closure spinner; the Model 14" "propellant injector for bottles and cans"; the "Presto" pressure tester; and the "Visue-Fill" pressure burette.

The Model 14" propellant injector is described as being capable of up to 30 injections per minute—depending on the quantity of propellant and the container valve—and is equipped with cycling devices that prevent a repeat injection.

New Fairfield Booklet

Pyrenone Facts Folder, a 20-page booklet containing performance charts and sample formulations, was issued last month by the Fairfield Chemical Division of the Food Machinery & Chemical Corp., New York. Among its chapters is one entitled "Aerosols and Pressurized Sprays" listing 17 representative aerosol formulations employing "Pyrenone."

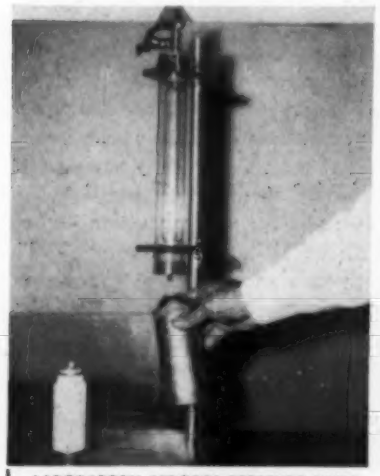
•

Navy Issues Propellant Data

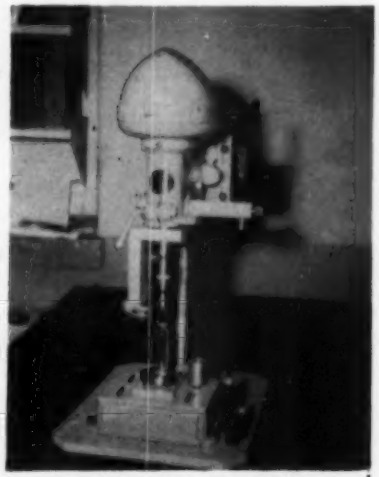
The thermal decomposition characteristics of organic nitrates used in propellants and how they are affected by various additives are described in two reports of Navy research recently made available to industry through the Office of Technical Services, U. S. Department of Commerce, Washington.

The Thermal Decomposition of Organic Nitrates III. The Effect of Additives on the Thermal Decomposition of Ethyl Nitrate. J. B. Levy, Naval Ordnance Laboratory. Aug. 1953. 34 pages. $1. (Order PB 121167 from OTS, U. S. Department of Commerce, Washington 25.) Development of a mechanism to explain the thermal decomposition of nitrate esters was completed during this research into organic nitrates important in the field of propellants. Strong confirmation for the mechanism was shown in results of analysis by infrared spectrometer of the effects of various additives on the thermal decomposition of ethyl nitrate at 181°C. Nitrogen dioxide and oxygen inhibited the reaction, while nitric oxide, acetaldehyde and diethyl peroxide accelerated it. The reaction was carried out on the basis of the mechanism, which enabled decomposition of the nitrate in such a way that the activation energy could be properly interpreted in terms of the nitrogen-oxygen bond energy.

The Thermal Decomposition of Organic Nitrates IV. Isopropyl Nitrate, Secondary Butyl Nitrate, Normal Butyl Nitrate, and Ethylene Glycol Mononitrate. J. B. Levy, Naval Ordnance Laboratory. June 1955. 31 pages. $1. (Order PB 121179 from OTS, U. S. Department of Commerce, Washington 25.) Studies of thermal decomposition of nitrate esters, analyzed by infrared spectroscopy and based on a mechanism for decomposition, were extended to isopropyl, secondary butyl, normal butyl and ethylene glycol mononitrates. In each decomposition the molecule cleaved at the oxygen-nitrogen bond to give alkoxyl radicals and nitrogen dioxide. Unstable alkoxyl radicals decomposed so rapidly that polymers or small molecules resulted, while more stable radicals survived long enough to combine with nitric oxide to give nitrite esters. It was concluded that the reaction products actually observed were determined by the ways in which the radical species reacted. The same is true in propellant burning, according to the report. Further studies of the reactions of free radicals are proposed for wider understanding of propellant burning.



LABORATORY AEROSOL PRESSURE FILLER



DRILL PRESS CAPPING MACHINE

TWO "MUSTS" FOR ANY AEROSOL LAB

The Builders' laboratory aerosol pressure filler is currently being used by leading companies for metering liquids under pressure into aerosol containers. Safety feature is the burette encased in heavy lucite tube. Sturdy aluminum stand and base available with 30 ML or 100 ML burettes (Price $120).

Another popular piece of equipment is the drill press capping machine for rolling and fastening aluminum or steel valves to tops of glass bottles. Production rate two per minute (Price $198).

Other outstanding Builder's items:

Constant temperature water baths, stainless ovens, tables, lab cabinets, containers, pressure testers for aerosol containers, snap-on screw top for aerosol containers.

BUILDERS SHEET METAL WORKS, INC.

108 WOOSTER ST. NEW YORK 12, N. Y.

Jet Bon Ami

(*From Page* 13)

ling, but also on the valve and actuator supplier, the Risdon Manufacturing Co., the protective cap supplier, and other suppliers of the materials and supplies that went into the manufacture of Jet Bon Ami.

Continental Filling was required to expand its facilities to keep pace with our demand. Other suppliers, such as Risdon Manufacturing Co., supplier of the special three-phase mechanical break-up actuator and valve, had to expand their production facilities far above their original expectations.

An article in the January 5th issue of *Chemical Week* describes some of the difficulties that Continental Filling Corp. encountered in expanding to meet our requirements. In fact, for one four week period, Continental was using an outdoor filling line while the building was being constructed around it. Photo number two is a picture of the filling line outdoors before the building was put up. Photograph number three is another view of the filling line without the building around it. Photo number five shows the filling line with a building finally around it and photo number four, the completed building.

The success of the Bon Ami product has created a wide new interest in the aerosol window cleaner and cleanser field. A number of the major soap companies are either in the process of bringing a similar product out, or have already done so. However, some of the new products will utilize fluorocarbon propellants, while "Jet Spray Bon Ami" has been employing butane, as the propellant, with its obvious advantage from the cost standpoint. The entire competitive picture is expected to increase sharply in certain areas.—Editor

The introduction of "Jet Spray Bon Ami" went off on schedule. It was introduced in New York in August and the rest of the East in mid-September and it had national distribution by the end of September.

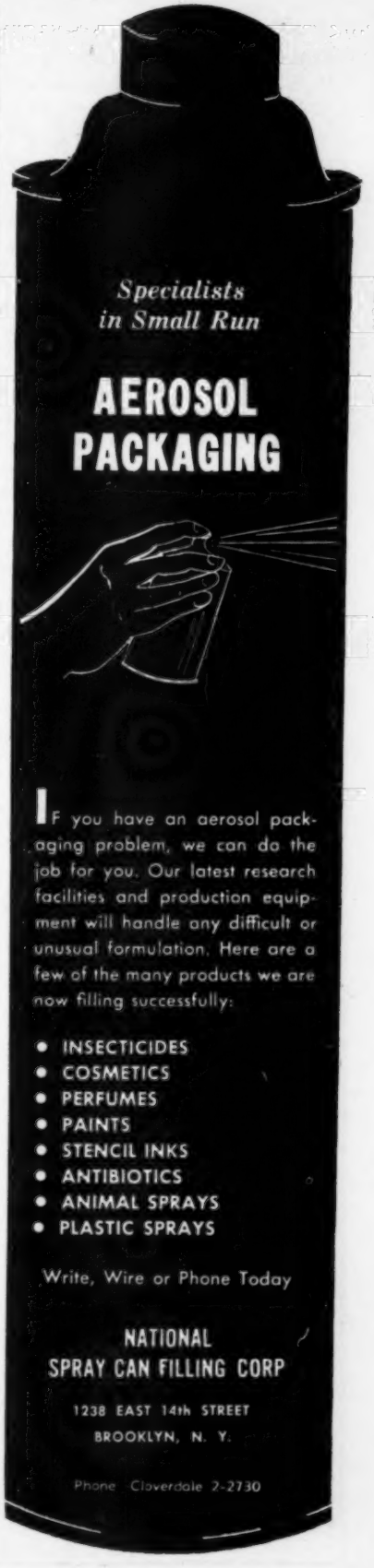
In the lead photograph, the can and label of "Jet Spray Bon Ami" is shown as introduced on a national basis in 1956. Photo six illustrates the stacking feature of the can. This built-in stacking feature in an aerosol can is achieved by constructing the base of the can to fit over the protective cap. We have found this built-in stacking feature with "Jet Spray Bon Ami" will permit easier stacking of the product on store shelves, as well as multiple case displays of the product stacked one on top of the other. Store managers have found the stacking feature makes it much easier to display consumer products.

As "Jet Spray Bon Ami" was introduced in more and more markets, additional quantities were needed. To meet this pace, Continental Filling was forced to double production each month from June through September. In many cases, the product was turned out on two or three shifts per day, including Saturdays and Sundays. Often it was necessary to air-ship daily valves, actuators, labels and other supplies. There were many times when production was on a questionable basis depending upon arrival of air shipments of various supplies.

"Jet Spray Bon Ami" has already been able to take over a fair share of the general cleaning market. However, in the consumer business, one can never rest on our laurels. With this in mind, a new label has been designed, and will soon be introduced. We feel that this is a definite improvement over the previous label. In photograph number seven the old and the new labels are shown side by side.

Sales strategy, advertising, and merchandising have already been prepared for promotion of the product in 1957.

Much of the success of this undertaking, in which a number of new features for an aerosol product have been incorporated, can be attributed to teamwork, to the cooperative and organized efforts of all departments in the Bon Ami Co., the advertising agency, the aerosol packager, our public relations group and suppliers.★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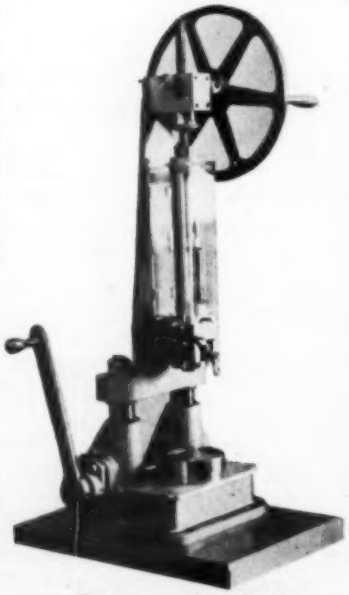

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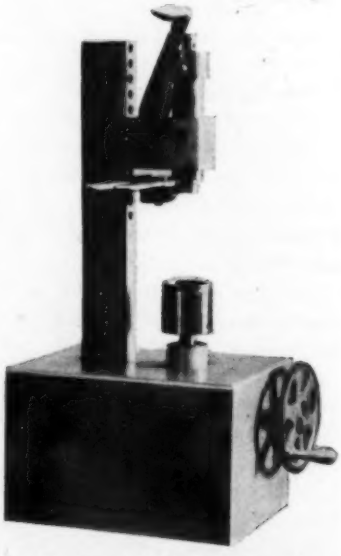

Foresman Hand Operated Vial Capper

Methylene Chloride

(*From Page* 23)

minute by reference to the nomograph shown in Figure 2. For example, let us assume a production line has an output of seventy 12-ounce units per minute and that the 25 per cent by weight of Propellant 11 will be 100 per cent replaced by methylene chloride. From the graph one can easily determine that the resulting savings would be $625 per eight-hour day.

Data are given in Table II relating the cost of typical storage tank installations for methylene chloride to rate of use and to the time required to pay the installation out of savings. Even on the minimum savings basis, it is found that a loader filling 15,000 units per day could pay for bulk storage in less than three months if he is using methylene chloride at the rate assumed.

Each aerosol loader has his own needs in regard to his manner of handling propellants and raw materials for formulations, but we believe most will find that the bulk storage pays off.★

Aerosols in Review

(*From Page* 26)

it seems to produce less foaming and to cause less corrosion. However, these effects vary with different formulations and the most satisfactory agent must be determined in each case."

"As a general rule the emulsifying agent should be soluble in the propellant phase in order to form water-in-oil type emulsions," the magazine reports. "This type is preferred rather than the reverse. When oil is the continuous phase, it can be extended by the propellant without destroying the emulsion."

The article admits that "In some cases slight bubbling of the residual film has been found. Low-boiling solvents especially may contribute to bubbling. The effect may be generally reduced by reformulation."

Among advantages of the DuPont system, *DCI* lists non-effect on flammability of the complete formulation, lack of corrosion when Emcol-14 is used, and a possibility of loading the materials separately to form the emulsion by shaking the final package.

D & O News, the monthly publication of Dodge & Olcott, Inc., New York, devotes its "Aerosol Corner" for February to a discussion of "Hair Lacquers—Shellac Type," which it says are "still quite popular as film formers for hair." As a chief disadvantage for this type of lacquer, the publication cites the difficult-to-remove film which is formed.

"From the perfumer's angle, shellac types present fewer fragrance problems . . . provided the shellac used meets high quality standards. There is no problem with residual odors such as is encountered in the perfuming of the PVP type. When PVP was first offered to manufacturers for use as a film former in aerosol hair lacquers, its quality varied from batch to batch. This presented a perfuming problem because certain lots possessed a residual odor which had been variously described as resembling roasted popcorn, or even worse, formaldehyde.

"Certain perfumes have been designed to overcome these two objectionable characteristics, although in recent years the manufacturers of PVP have improved their process to the point where perfume requirements of the individual formulator are more to be considered.

The article concludes: "The type of fragrances which are preferred for both shellac and PVP type hair lacquers are those which possess indefinite characteristics. That is, odor notes must be used which will not conflict with any perfume which the lady may happen to be wearing, be it a heavy oriental or a light floral. Thus some very special attention must be given to their formulation."

"BIGGEST and most promising area of future development for the self-spraying dispenser is in the veterinarian field, where the aerosol package holds bright prospects for easing the treatment of normally jumpy and hard-to-handle animals," reports the February issue of *The DuPont Magazine*, in an article entitled "Pushbutton Containers Make For Easier Medication of Livestock."

Products for external application of medicines already are available," the article continues, "and, judging from recent progress in aerosol treatment of internal ailments in humans, the day might not be far distant when farmers will be administering oral doses of animal medicines from one of the push-button containers."

The article discusses various successful applications of aerosol medicines for animals, listing preparations for:

1. Control of screw worms and grub worms. "A single 12-ounce can, for example, treats 180 to 270 wounds, drives the medicine deep down into pockets and crevices of the wound to get a quick kill of screw-worm larvae, and protects the cattle from re-infestation for five to seven days."
2. Use against spinose ear-ticks in cattle, horses, goats, sheep, and other domestic animals. "It is particularly effective because the soft, gentle mist not only is less painful to the animal but penetrates the masses of ear wax and ticks thoroughly and quickly, rapidly killing all the larvae and nymphs and providing protection against re-infestation for three weeks or more."
3. Protection of chickens against chronic respiratory disease(CRD). "Containing dihyrostreptomycin, it's sprayed over the flock in the brooder house, usually at night when the chickens are roosting, so that the antibiotic settles down gently over them and is inhaled into the respiratory tract."

The DuPont article also discusses wound dressings, which are of particularly high effectiveness is dealing with farm animals; and the aerosol plastic surgical dressing, which "permits the former to follow visually the healing without unnecessary removal of the dressing."★

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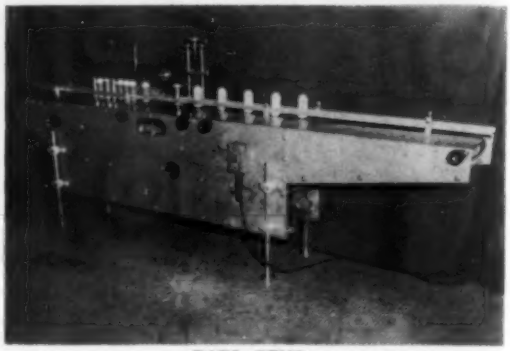

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PROTECTION TO PROCESS ... UNDER PATENTS ... BOSSMANN, 2,155,260 DILLE ?

New Aerosol Patents

The data listed below is only a brief review of recent patents pertinent to the readers and subscribers of this publication.

Complete copies of these patents may be obtained by writing to the publisher of this magazine, Aerosol Publications, Box 31, Caldwell, N. J., and remitting 50c for each copy desired. For orders received outside of the United States the cost will be $1.00 per copy.

2,777,004. Preparation of Hexafluorobutadiene from Symmetrical Dichlorodifluoroethylene. Patent issued Jan. 8, 1957, to Robert P. Ruh, Ralph A. Davis, and Keith A. Allswede, Midland, Mich., assignors to The Dow Chemical Co., Midland, a corporation of Delaware.

A process for the preparation of hexafluoro-1,3-butadiene which comprises fluorinating 1,1,2,3,4,4-hexachloro-1,2,3,4-tetrafluorobutane to 1,2,3,4-tetrachloro-1,1,2,3,4,4-hexafluorobutane and dechlorinating this latter compound with zinc in the presence of alcohol to obtain hexafluoro-1,3-butadiene.

2,777,735. Aerosol Dispensers. Patent issued Jan. 15 to Edward H. Green, Addison, Ill.

An aerosol dispenser, comprising: a cover for a container; an elastic ring with a central hole secured in the cover, a casing secured on the cover under the elastic ring, provided with a valve-chamber communicatively connected to the container; a valve-plunger movable in said chamber, underlying in its entirety the elastic ring, having its upper end adapted to seat on the under face of the elastic ring around said hole, for closing said chamber, and provided with a socket extending downwardly from the upper end of the plunger and a closed side and bottom; means for urging the plunger to seat on the elastic ring for closing the chamber; a tubular stem separate from the plunger, having a sliding and sealing fit with the hole in the elastic ring, slidable through the hole in the ring in the plunger, into and out of the socket, and for operatively and detachably connecting the stem to the plunger, and provided with an elongated slit which is closed by the elastic ring when the plunger is seated on the ring and communicates with the valve-chamber when the plunger is separated from the ring, for the flow of fluid from said chamber into the stem, and a press-button supported on and movable with the stem, and provided with an expansion chamber communicatively connected with the hollow stem and a discharge orifice.

2,778,403. Aerosol Filter Making Machine. Patent issued Jan. 22 to Edward J. Hackney, Charles D. Faucette, and Frederick R. Darkis, Durham, N. C., assignors to Liggett & Myers Tobacco Co., New York, N. Y., a corporation of New Jersey.

In a machine for making aerosol filters, in combination, braking means, a pair of powered rollers each having a tread of hard high-dielectric material, said powered rollers being adapted to draw a tow of textile filaments from a supply reel through said braking means and to stretch the same over one of said treads whereby to give said filaments an electrostatic charge by the friction of the filaments over said tread, an applicator chamber adapted to receive the charge tow passing from between said powered rollers, and power-driven means to agitate the atmosphere within said chamber.

2,778,663. Machine for Cutting, Folding, and Pressing Labels. Patent issued Jan. 22 to Frank A. Ross, Ross Township, Pa., assignor to Leon Hershaft, Yonkers, N. Y.

A machine for automatically cutting, folding and pressing labels comprising, in combination, a knife mechanism, means for feeding a strip of labels to said knife mechanism, said knife mechanism being adapted to sever the end label of said label strip, mechanism for folding said severed label, transfer means adapted to seize said end label as it is being severed by said knife mechanism and to carry it to said folding mechanism, pressing means to permanently crease said folded label in one pressing operation, said pressing means including a pair of parallel stationary members being heated along their front undersurfaces, said stationary members having longitudinally disposed conveying channels on their undersurfaces, each said channel

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being longer than the length of an individual label, said channels forming depending lips along the inner edges of said stationary members, a pair of parallel pressing members disposed below said heated members and being adapted to move upwardly at periodic intervals so as to press the folded ends of a label against the heated surfaces of said stationary members, and a pair of reciprocating jaw means adapted to receive a folded label from said folding mechanism and carry it into the pressing mechanism so that the folded ends of said label lie between the heated surfaces of the stationary members and the pressing members and said jaw means being further adapted to convey said label, after it has been pressed, between said stationary members and said pressing members in such a manner that the folded ends of said label move freely in said conveying channels.

2,778,679. Aerosol Generator. Patent issued Jan. 22 to Joseph D. Lear, Silver Creek, N. Y., assignor to Silver Creek Precision Corp., Silver Creek, N. Y.

An aerosol generator comprising a casing having a motor driven impeller and a fan mounted therein, together with a reservoir for liquid adapted to be supplied to said impeller, and a standard connected to said casing for supporting said casing upon a surface at different angles, said casing having a hingle plate secured to the circumference thereof, said plate having depending lugs formed with apertures, a rod bent into a generally triangular formation having free ends pivotally mounted in said apertures, one of said ends being bent outwardly from the sides and base of said formation to provide a leg, said leg being bent substantially parallel to said formation to form a foot, said leg being of less length than the height of said formation, whereby said standard may be swung to support said casing either on the base of said formation or said foot.

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2,779,358. Filling Machine Incorporating Means for Purging Air from Containers Prior to Filling. Patent issued Jan. 29 to Paul R. Fechheimer and Edward F. Rowekap, Cincinnati, assignors to The Karl Kiefer Machine Co., Cincinnati, a corporation of Ohio.

In container filling apparatus, a head element formed to provide two chambers, one for filling material and the other for suction, a filling spout structure associated with said head, said filling spout structure including filling and exhaust tubes, a first connection between said filling chamber and said filling tube and a second connection between said suction chamber and said exhaust tube, a conduit for supplying gas under pressure, and valve means for breaking the connection between said suction chamber and said exhaust tube, and connecting said exhaust tube to said conduit, said valve means comprising a segmental valve in said suction chamber including a pressure block contacting the inner wall surfaces of said suction chamber and having a port adapted to communicate with the connection between said exhaust tube and said suction chamber, and means for urging said pressure block into contact with the walls of said second mentioned chamber.

2,779,516. Dispensing Valves. Patent issued Jan. 29 to Jack W. Soffer, St. Louis, assignor to Development Research, Inc., St. Louis, Mo.

A dispensing valve for gas-pressure containers, comprising a container wall portion having a circular aperture, a sealing member formed of resilient material having a tubular sleeve portion extending through said aperture, the outer surface of said sleeve portion being in close sealing contact against the inner wall of said aperture, the sealing member further having a radially-enlarged body portion at the inner end of the sleeve portion, said body portion having at its inner side a valve seat portion, the said body portion further having a central passage extending from the valve seat portion outward to enter into the sleeve portion, the said body portion further having a girdle extending inward into said central passage at the juncture with said sleeve portion and forming a constriction at a level inward of the container wall, together with a tiltable tubular rigid valve member having a stem protruding through said central passage, girdle and sleeve portions, a stem port and an imperforate head adapted to close against said valve seat portion, the stem wall being smoothly cylindrical in the region encompassed by the girdle and having a diameter greater than that of the opening in the girdle prior to insertion of the stem therethrough whereby tensile force set up in the body portion on the insertion of said stem seals it at a level inward of such aperture.

Trade Mark Applications

Aerotainer, in small unfilled letters inside a triangle, for pressure dispensing container for liquids, including volatile liquids. Application filed June 15, 1956, by White Metal Manufacturing Co., Hoboken, N. J. First use claimed Sept., 1954.

Ex-It, in large black capitals, for air sanitizer. Application filed Jan. 5, 1956, by H. W. Le Fevre, d.b.a. Le Fevre & Son, Oklahoma City, Okla. Claims first used June 1, 1955.

"Frostine," in unfilled capitals, for a compound for frosting the surface of glass. Application filed Aug. 27, 1956, by The Gerson Stewart Corp., Cleveland. Claims first used in Jan., 1927.

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Sun Tube Sales Meeting

Sun Tube Corp., Hillside, N. J., a subsidiary of American Can Co., last month held a three-day sales meeting at Skytop, Pa., attended by more than 20 representatives of the company's sales force. Featured at the meeting were a number of seminars and discussions designed to inform the sales force of the latest activities in various areas of the company's work, including a number of discussions on the Aerosol Division. Tours of the Hillside and Washington, N. J., plants concluded the annual meeting.

•

Nat'l Can Names Henschel

George F. Henschel, formerly general manager of sales of the American Can Co., New York, last month was named general manager of sales of the National Can Corp. He had been with American Can since 1930.

Aerosols Overseas

(*From Page* 55)

comes out somewhat better than we would in the U.S. with the same income in the non-urban German sections. However, this does not mean that any favorable difference must and can be immediately translated into the end price of any individual item, as, for example, an aerosol can. It is their argument that, on the same basis, an aerosol can costing $1.00 in the U.S. should not cost more than DM 2.00, or about $0.50, in Germany!★

Food Aerosols

(*From Page* 15)

fluorinated hydrocarbon propellants for conventional aerosol products. Both original applications date back some ten years, and during the intervening period there has been considerable progress made in engineering and design. Therefore, whether aerosol food packaging continues to employ nitrous oxide-carbon dioxide as the propellant, or adopts the fluorinated hydrocarbon propellants, prospective packagers of pressurized food products can select from equipment lines that have been equally plant-proven with the particular propellant best suited for their products.★

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A Correction

In "Bridgeport — Aerosol City," an article in the February issue of *Aerosol Age*, it was stated that Hunter Douglas was "sold to Bridgeport Brass by Connecticut Chemical." This should have read "Hunter Douglas was purchased by Bridgeport Brass," since the aluminum company was an independent firm.

Bradley to Sales Post

Oil Equipment Laboratories, Inc., Elizabeth, N. J., recently appointed Robert D. Bradley to the position of sales manager.

Packaging Exposition

(*From Page* 28)

The Mojonnier aerosol line will be filling two types of DuPont "Zytel" plastic containers, some four-ounce blow molded "Boston Round" Continental Can plastic containers, and a 8½-ounce two-piece, two-color injection molded design furnished by National Plastics Co., Odenton, Md. In addition to all of the above, the exhibit will feature DuPont "Freon," cologne by Flum Chemical Co., valves and overcaps by Risdon Mfg. Co., and filling equipment by Mojonnier.

In addition to the filling lines, Mojonnier will exhibit its new "Rotary Filler," first unveiled in a pilot model at the December CSMA convention in Washington, and which it says is capable of speeds up to 600 units of four-ounce fills per minute. The company will also demonstrate its automatic weight control and recording system.★

Consultant's Corner

(*From Page* 33)

When the possibilities afforded by the growing number of aerosol package types are considered, it is apparent that aerosol packaging design will become increasingly a matter of container choice. All of the new types mentioned offer a great variety of shapes and colors. Advantages and disadvantages of one against another must be properly weighed, and in all cases thorough testing from every standpoint must be a precursor to any decision.

Regardless of any specific answer in any specific case, it is a certainty that aerosol packaging, with a capital "P," is now entering a phase of unparalleled flexibility.★

New Legislation

(*From Page* 9)

objectionable sections of the bill so well publicized.

It is hoped that the Connecticut State Legislature will use discretion and common sense in considering the various bills, particularly since Connecticut is the site of so important a segment of the aerosol industry.★

OVER THE TRANSOM

THE idea of an organization for Europe's aerosol industry is gaining some popularity. With close to 28 million units in 1956 (an "educated guess") the industry is beginning to flex its muscles. Even Finland, relatively small in population, already boasts five fillers. Druk-Pak's monthly "European Aerosol Survey," which is distributed in most of the countries on this side of the Iron Curtain, has this to say:

"Having come of age, solved its own problems and matured beyond its years, Europe's aerosol industry is ripe for a rational organization to coordinate its various interests. . . . Such an association could set standards for safety, pressures, packaging, etc."

The idea has a number of staunch adherents, and the time for it couldn't be more opportune. France, Italy, West Germany, and the Benelux countries are in the midst of talks to iron out long existing tariff and trade barrier regulations (they are being encouraged and watched closely by Great Britain and the Scandinavian countries) and manufactured goods will probably be the first to feel the new freedom from national trade impediments. Aerosol component manufacturers and fillers are watching these negotiations closely; and, it would seem, are giving more heed to the whole organization idea.

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National advertising, most of it highly novel, continues to attract leading aerosol producers. During the latter part of January and early February two new ideas were advanced—one by Helene Curtis and another by Carter Products.

Helene Curtis is promoting "Spray-Net" sales with an offer by Ray Bolger, star of the Sunday television show, "Washington Square," to return his personal check for 50c to anyone sending him a label from the hair spray package, currently retailing at $1.25. The offer will also be advertised in a national magazine campaign and in special displays in retail stores.

Carter Products' "Rise" was one of a number of products in a new promotional campaign in Philadelphia drug stores to spur sales of "king size values." Launched in cooperation with four Philadelphia drug service wholesalers and the independent Philadelphia pharmacists, the campaign was backed up by color newspaper advertisements and window and floor displays in the stores.

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Aerosol Techniques, Inc., Bridgeport, has come up with an idea which it hopes will open wide its doors to new ideas in aerosol packaging. The company has hit upon a plan whereby suppliers' sales representatives are invited to give ATI their new ideas and receive in return an appointment with the company's purchasing department. The company is sending to its suppliers over-size simulated yellow theater tickets, labeled "What's your big idea?" The idea is to be written on the reverse side of the ticket. The scheme is being fostered by ATI president, H. R. Shepherd, who believes that far too many good suggestions are being by-passed in the whirl of modern-day business.

Among the more unique novelties distributed by aerosol producers this past Christmas was a colorful aerosol jig-saw puzzle sent out by Klarre & Co. A. B., Stockholm, Sweden, to 6,000 of the company's business contacts, customers, and travelers. It depicted a number of the firm's aerosol products in use by elves, gnomes and other fanciful creatures. We had to put it together to find out.

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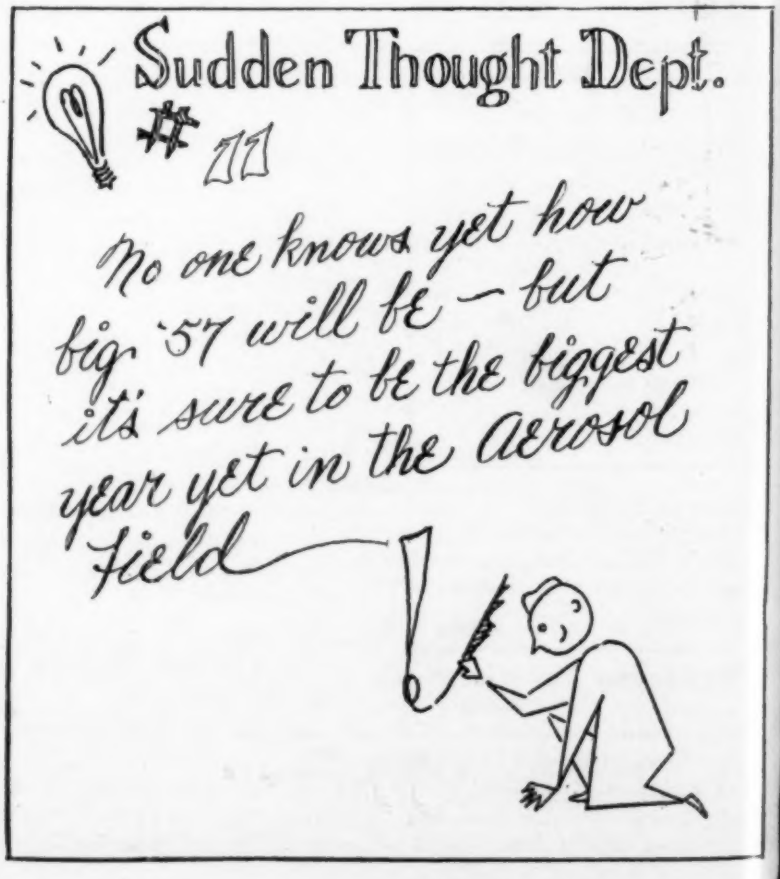
England is in for a vastly increased advertising campaign to launch, or to publisize already-launched, new aerosol products. Esso Petroleum and Cooper, McDougall, and Robertson, each with new insecticides and air fresheners, have both initiated large-scale programs in television, national magazines, and the press. There is also evidence of increased activities by other companies.